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WINTER '69

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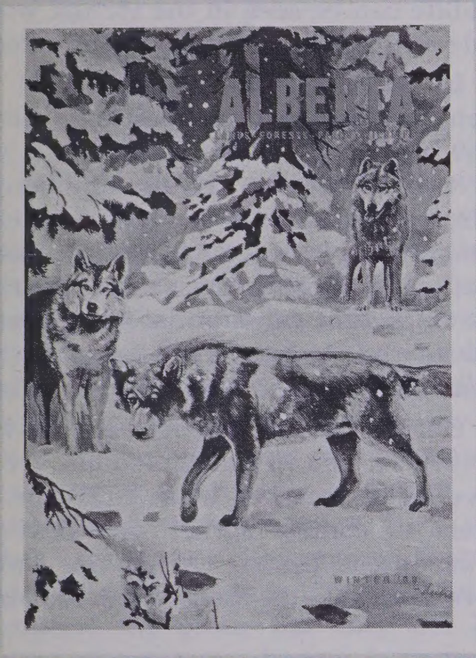
ABOUT OUR COVER



To many outdoor people the wolf is a cherished symbol of unspoiled country. They might not be lucky enough to catch sight of this wary animal, but to find tracks in the snow, or even hear his wild, musical howl by moonlight, is a rich and rewarding experience. What would the wilderness be like without the timber wolf? Even to know wolves are still there lends special charm to remote country.

Cover painting by Lionel Dunn, artist with Alberta Dept. of Lands & Forests.

INSIDE FRONT COVER

View from Sir Winston Churchill Park southeast along the causeway to the first island and the mainland.

Provincial Parks Photo

ALBERTA

Lands - Forests - Parks - Wildlife

Vol. 12, No. 4 Winter 1969

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CORRECTION

Page 7, Fig. 2 — Fall '69
Horns of two six-year-old rams.

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How Will We Die?

S. B. SMITH

DIRECTOR, FISH AND WILDLIFE DIVISION

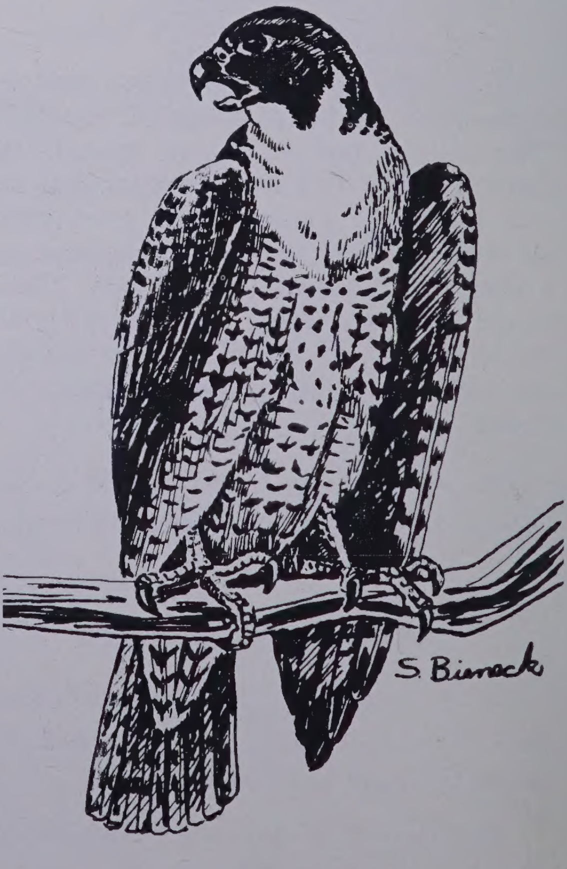
The recorded history of mankind is literally sprinkled with prophecies of doom, pestilence and hellfire. Most prophecies, however, were based on portents such as astrological configurations, or were made during or immediately following natural catastrophies of great magnitude. In earlier times, the prophet could only speculate as to the future; if he was a strong person with influence in the court of his king, he survived but he didn't have much data on which to make his predictions.

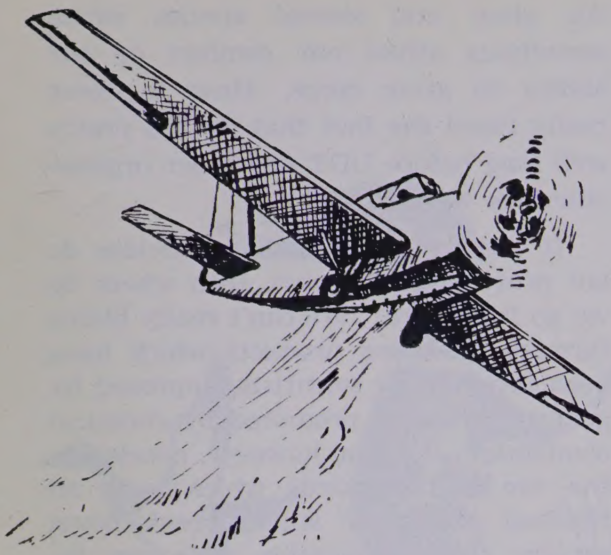
More recently, highly qualified scientists have been making prophecies that man's very existence is threatened by the waste products of his society, or by his attempts to modify the environment to suit his own ends. These modern prophets generally are fairly conservative in their predictions, and seldom are they emotional or unduly speculative. Almost always they have good evidence on which to base their statements. One of the first comprehensive surveys of environmental pollution was published by Rachel Carson, with the title "Silent Spring". Miss Carson's book was received with a mixture of reactions. Most biologists welcomed "Silent Spring" as a general statement of great value, but others, such as chemical engineers employed in the business of manufacturing insecticides and herbicides, violently attacked Miss Carson and classified her as an alarmist, an incompetent or even as a psychopath. Let's look at some of the things Rachel Carson prophesied, and decide on the evidence—years later, as to whether she was even close to the mark.

When "Silent Spring" was published, the major concern expressed in it was for wildlife species, such as songbirds, hawks, and fish and not generally for domestic animals. The major concern was with wholesale pollution of the environment by the organochlorines or chlorinated hydrocarbons, as these chemicals are commonly known. Since Miss Carson published her book, biologists all over the world have amassed an impressive body of evidence which goes far beyond Rachel Carson's prophetic writings. Perhaps the most startling example of the effects of pesticides on wildlife can be seen in the virtual world-wide extinction of the peregrine falcon.

In Alberta, this beautiful bird has been reduced to three nesting pairs in 1969, and may be extinct within a year or two. Recently, levels of mercury poison were found in pheasants and Hungarian partridge in Alberta, which resulted in closing the season on these two important game birds. The probable loss to the economy of Alberta in 1969 alone likely will be more than $5,000,000.

During the past twenty years in New Brunswick and British Columbia, forests have been sprayed with DDT, in our effort to control spruce budworm and other insect pests. (After the forests were sprayed, the budworms remained,



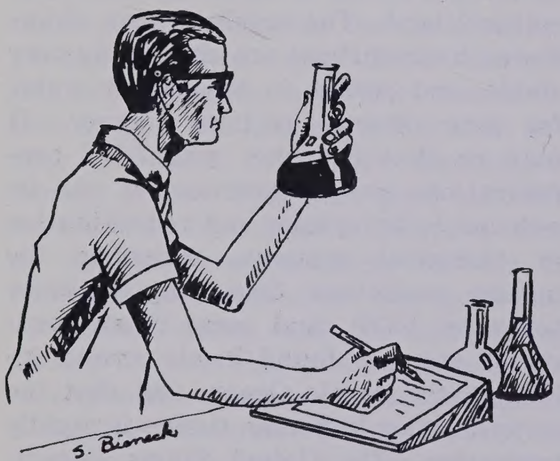


but millions of harmless insects were killed and in some streams, salmon were almost totally wiped out.) In Eastern Canada and the United States, large scale spray programs have been carried out to control the spread of the so-called "Dutch Elm Disease" which has killed thousands of elms in eastern hardwood forests, in the cities and on forestlands. These examples are only a few of the thousands of applications of DDT and timber chemicals. The common feature of all these programs is that they failed to control the pests, but they did kill millions of organisms known to be beneficial to man, and they wiped out birds, fish and some mammals over vast areas.

As the human population grows, man is faced with an urgent need for increased food production. During the past twenty years, there have been developed better farming practices, better fertilizers and increased efficiency and mechanization, all of which have contributed to much higher yields of agricultural products. During this time also, a vast number of new chemicals have become available to aid the farmer in his fight against noxious plants and insects. One of the best known of these recent chemicals is DDT, acclaimed after World War II as the ultimate weapon in man's war against the insect world, comprised of more than 1,000,000 species and billions of billions of individuals.

The agricultural chemical industry has produced many families or chemical groups of herbicides and insecticides; a large number of these have now been discarded for general use, but the organochlorines are persistently applied in most agricultural areas of the world. One of these, DDT, has been adopted by the urban world, and now is probably used more widely in homes than on agricultural land. The residues from chlorinated hydrocarbons are chemically very stable, and persist in the soil or water for long periods, perhaps forever. It may be that the only way DDT concentrations in the environment can be reduced is by uptake and redistribution in biological systems, including the human population. One thing we know for sure: DDT (and some other pesticides) are now found in all oceans, including the Arctic Ocean, and that the concentration in human tissues is rapidly increasing. The United States Department of Agriculture allows a maximum of 7 parts per million of DDT in agricultural products; the average concentration in humans in the United States is **over 8 parts per million.** Recently, a conference on pollution was held in Toronto, where a medical doctor stated that the evidence was "incontestable" that DDT has cancer-producing properties. Yet in many households, whether on farms or in cities, insect "bombs" containing DDT are used almost daily to kill insects.

Now let us go back to the effects of DDT and other chemicals on wildlife. It might be well to ask why we should be worried about the death of a few thousand hawks. The answer to this question is that the hawks which have died or are still dying, provide a warning to us that we are poisoning the world-wide environment. We know that these poisons can now be found in fish and fish-eating birds in all the oceans of the world. We know that some microscopic organisms in lakes and oceans concentrate some of the poisons which we are adding to the environment at a rate of **thousands of tons each year.** We know that some organochlorines have mutagenic properties, that is, they can act on the genes and chromosomes of living tissues to alter the ways in which cells use food and produce waste products, or actually kill the plant or animal. If the load of poisons in our oceans kills some of the oceanic plankton species which produce most of the world's oxygen, will we join the list of rare, endangered or extinct species?



We might well ask ourselves how long we can afford to pursue a course which has already led to the virtual extinction of some species of wildlife. We cannot afford to guess wrong, if the source of oxygen in the air we breathe is in danger; we have to recognize the fact that we can no longer poison the environment which sustains us. The possibility of nuclear war between the great powers really becomes insignificant when compared to the larger danger of total extinction of human life by a poisonous load in the environment. Such a catastrophe could be prevented by recognizing our limitations to control the plant and animal species which sometimes affect our comfort or our ability to grow crops. Have we ever really faced the fact that we did pretty well long before DDT and other organochlorines were available?

If the herbicides and insecticides do not provide the answers, then where do we go from here? We can't really blame farmers for using products which have been invented by scientists, approved by governments and promoted by chemical companies. We can, however, accelerate the use of compounds which have no residual effects or which break down rapidly after application. We can increase the research effort needed to develop biological controls such as the culture and distribution of insects rendered sterile by treatment with ultraviolet irradiation. We can explore the development of synthetic chemicals which would simulate the action of plant and insect hormones, which in some cases could cause the death of unwanted or harmful species, but which would not poison beneficial species, or the environment at large. I do not think that the agricultural chemical industries would care much whether they produced DDT, heptachlor, dieldrin or aldrin or whether they produced an insect hormone to upset the physiological development of grasshoppers or spruce budworms. Perhaps we might be forced to spray our crop lands with a hormone which would kill all insects, and have factories producing the beneficial species for reintroduction. In any event, we can be certain that we cannot win the fight for survival against our natural enemies, if the weapons we have developed are going to kill us too.

We probably still have a choice as to how we die. If we keep the environment tolerable, most of us can look forward to a productive working life, retirement and our passing in old age. If we continue to invent and use chlorinated hydrocarbons at the rate which has been reached today, we will not only not reach retirement age, but we will see the collapse of our environment through our own capacity to poison it.

How shall we choose to die?

DUCKS of ALBERTA

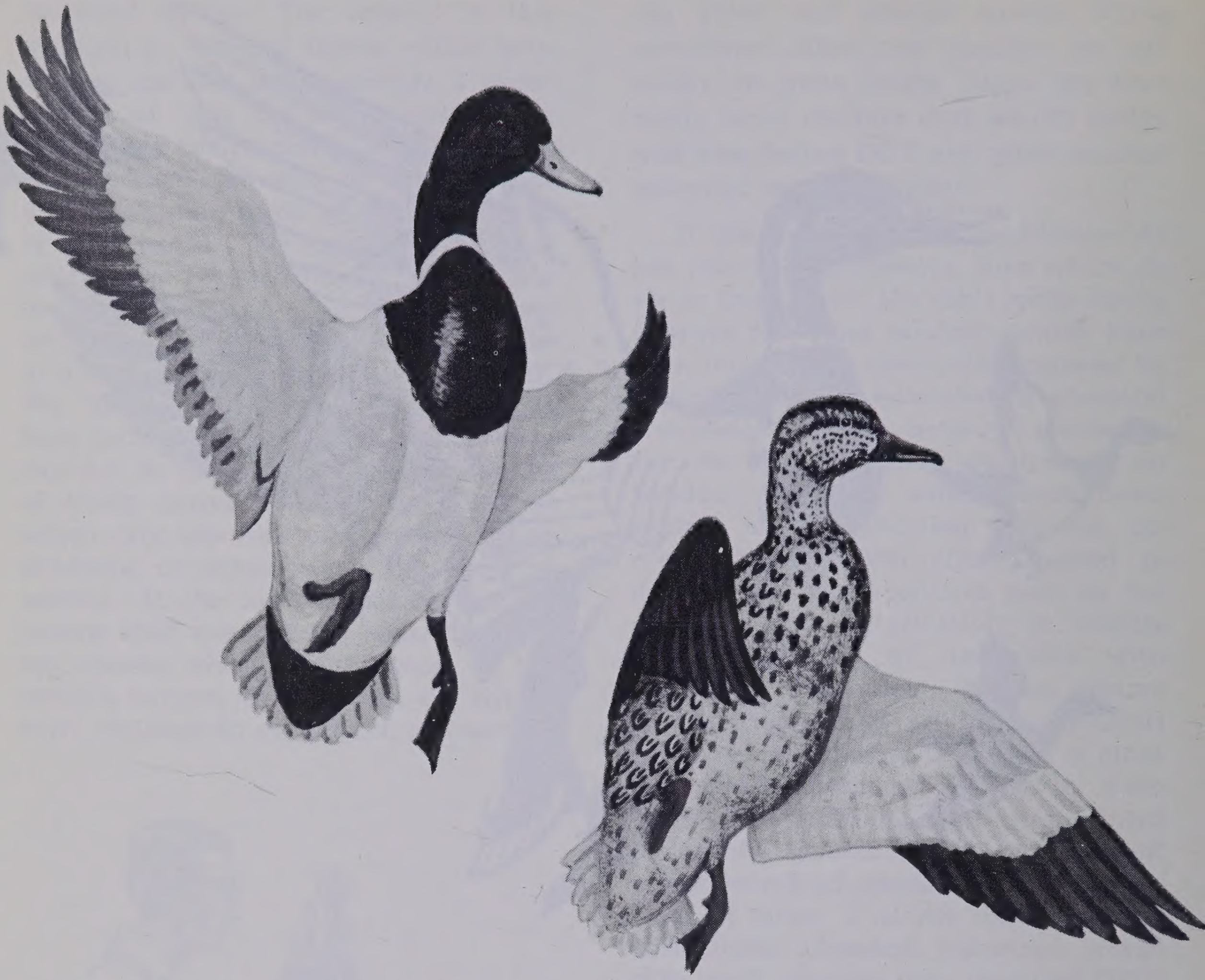
(PUDDLE DUCKS)

Puddle ducks are typically birds of fresh, shallow marshes and rivers rather than of large lakes and bays. They are good divers, but usually feed by dabbling or tipping rather than submerging.

The speculum or colored wing patch is generally irridescent and bright, and often a telltale field mark.

Any ducks feeding in croplands will likely be puddle ducks, for most of this group are sure-footed and can walk and run well on land.

They ride higher in water than divers, and launch themselves directly upward when rising, whether from land or water.



MALLARD

Identification

Male: Head and upper neck are irridescent green with a white ring or band separating the chestnut lower neck and breast. Back and wings brownish gray. Female: Upper parts brown streaked with black, throat and foreneck buffy and underparts buffy gray spotted with brown gray—legs of male and female, orange red.

Range

Throughout Alberta, winters from southern Canada to Panama.

Nesting

On the ground. Nest of grass and leaves lined with down. Eggs 8 - 12, buffy green.

Food

Grasses, harvest fields, seed and various surface aquatic plants.

Remarks

Most common duck. Extremely hardy, wintering as far north as it can find open water. Flocks often leave the water in early morning and late afternoon to feed in nearby harvest fields, returning to marshes and creeks to spend the night.

BLACK DUCK

Identification

Both male and female much like a very dark female mallard but the speculum bordered with black only. Speculum irridescent purple.

Range

Eastern North America. However, several have been trapped in the Lake Athabasca delta region. Recently, some have been taken in the Hanna district as well. Winters in U.S.

Nesting

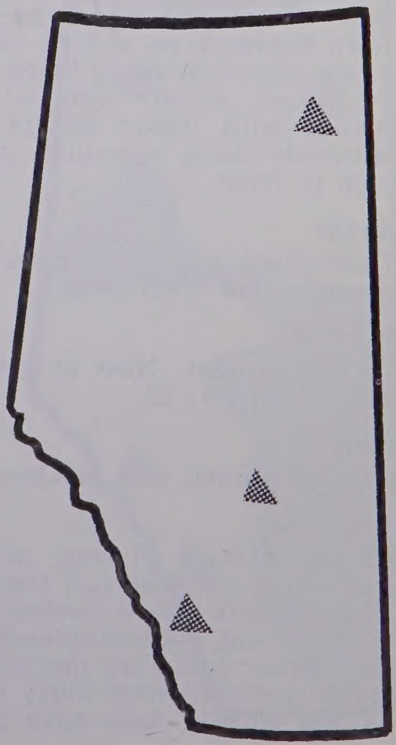
On the ground, often some distance from water. Nest of grass and reeds lined with down. Eggs 8 - 12, buffy green.

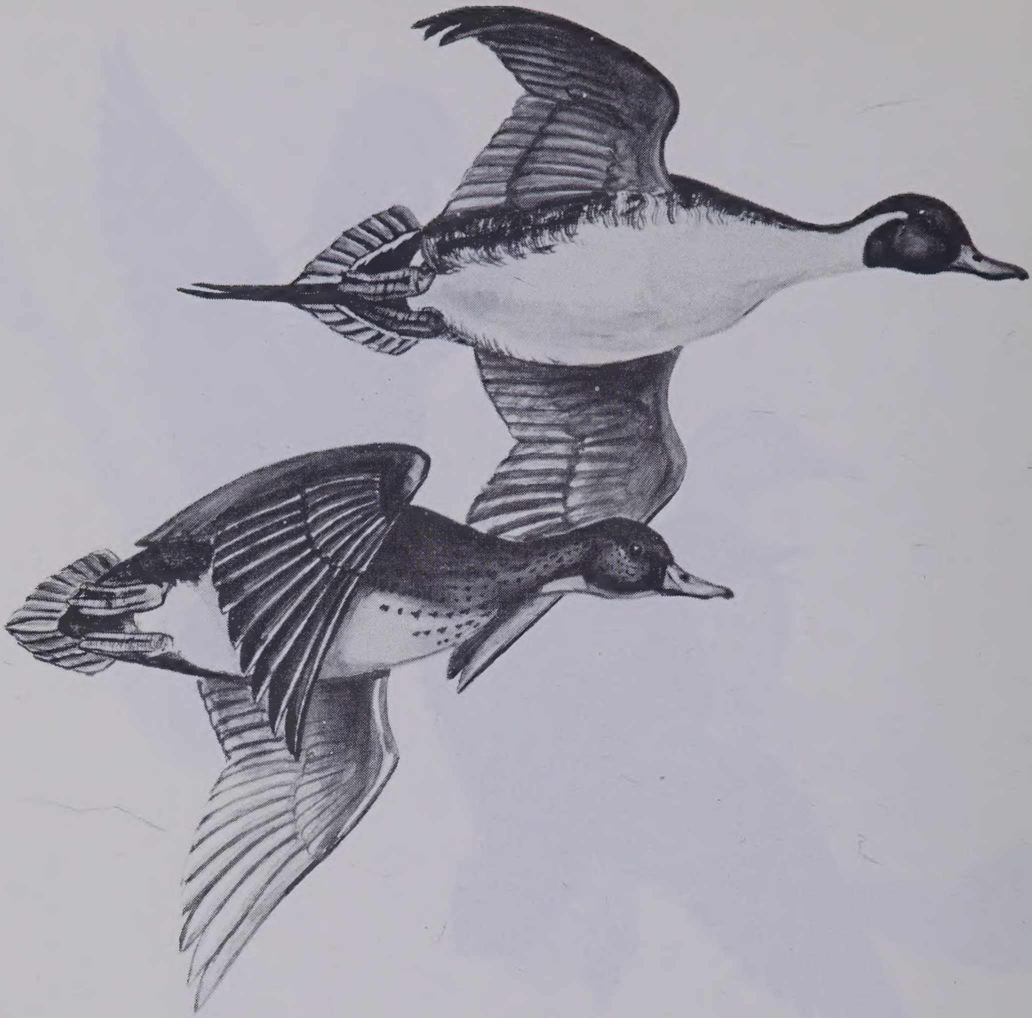
Food

Eel grass, seeds, wild celery and grain (nocturnal feeders).

Remarks

A bird of the Eastern region, using the Atlantic and Mississippi flyways. Shy and wary, regarded as the wariest of all ducks. Often seen in company of mallards, but along the Atlantic coast frequents the salt marshes and the ocean much more than mallards. Only rarely found in Alberta. Flight is swift, usually in small flocks, in V or angular lines.





PINTAIL

Identification

A large duck with long neck and pointed tailfeathers, the central two much longer than others in male. Male: Head and upper neck dark brown extending down hindneck as a dark stripe bordered with white, wings gray with heavy black striped borders. Speculum irridescent green. Female: Head and neck buffy, striped with brown except on throat. Upper parts brownish black, speculum grayish brown with green edge in front.

Range

Throughout Alberta, winters in Southern U.S., Central America and West Indies.

Nesting

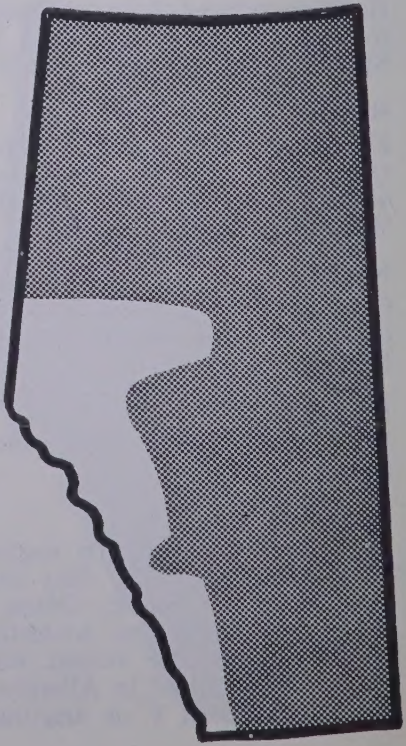
On the ground. Nest of grass, leaves and lined with down. Eggs 8 - 12.

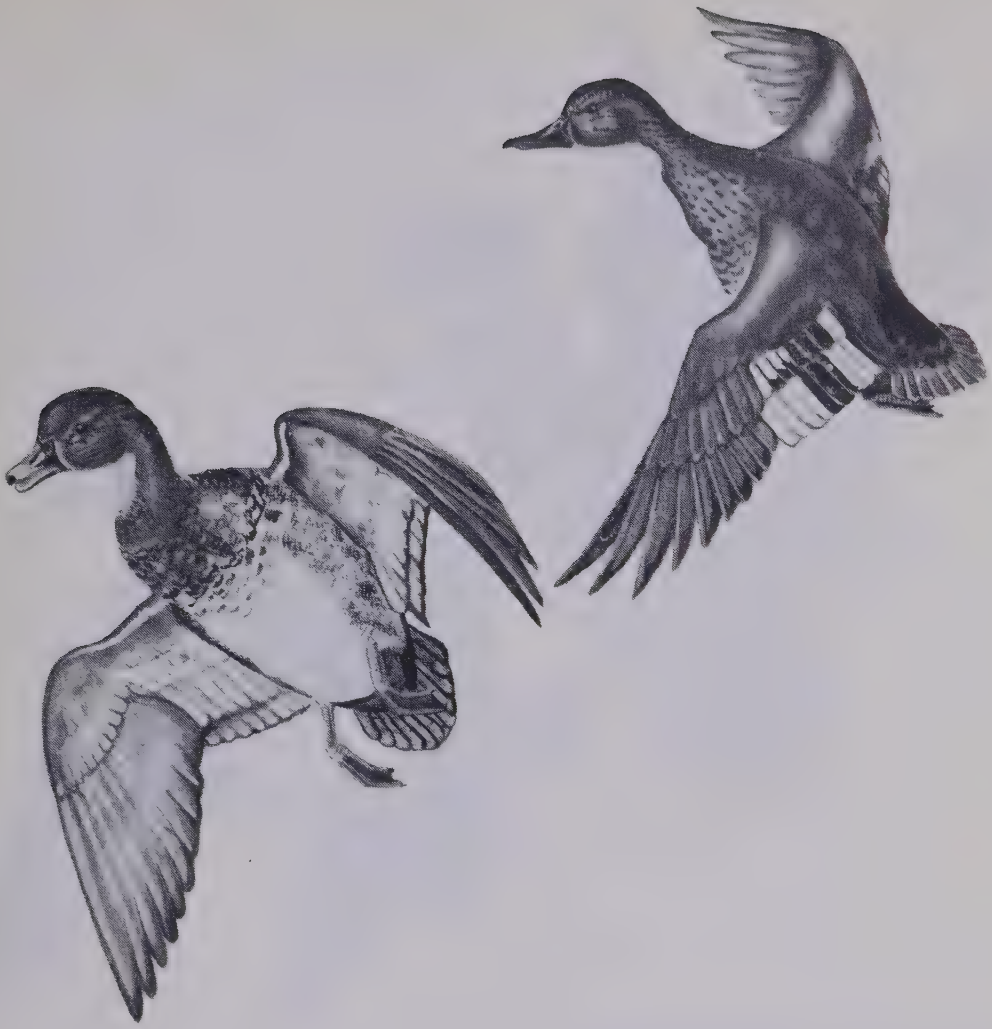
Food

Aquatic animal life, pondweed, watergrain and seeds.

Remarks

Found in every flyway, most plentiful in the west. Extremely graceful, fast flier, fond of zig-zagging from great heights before leveling off for a landing. Equally agile on land, visits croplands to glean food. Long neck and slender build are the best field marks. The bronzy green speculum with buffy front border is distinctive. Drakes whistle, hens have a hoarse quack.

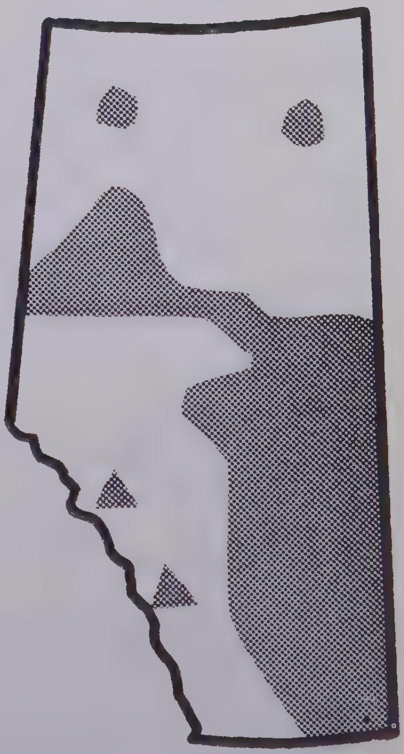




GADWALL

Identification

Male: Head and neck pale buff streaked and spotted with brownish gray. Upper back, breast and sides brownish gray finely barred with wavey lines of white, inner feathers of speculum white, outer one black, speculum bordered in front with a heavy band of black, in front of which is a large patch of chestnut. Female: Fairly large size, generally grayish appearance relieved only by the white patches on the wing close to body.



Range

General throughout most of central and southern Alberta. Winters in southern U.S. and Mexico.

Nesting

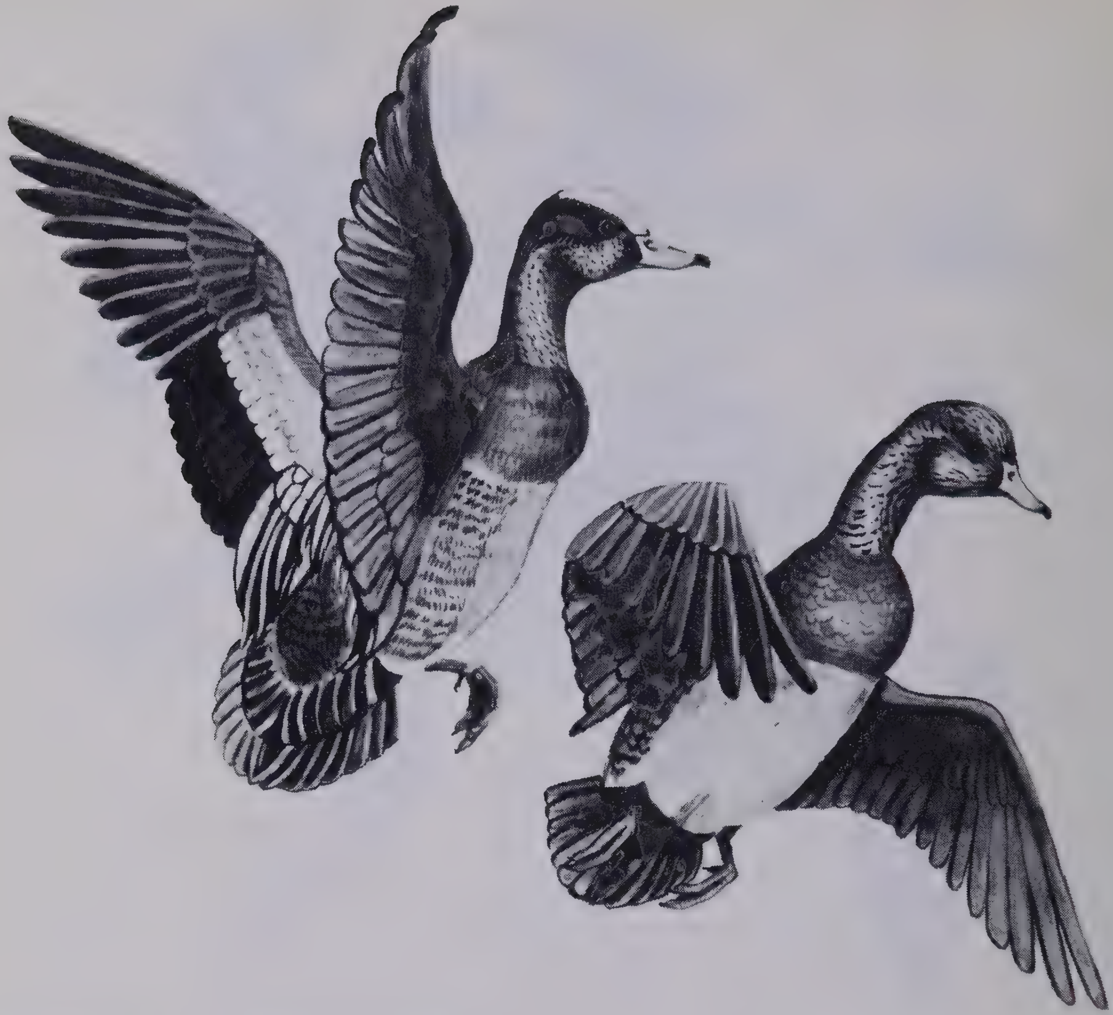
On the ground not far from water. Nest of grass lined with down. Eggs, 7 - 12, cream or pale buff.

Food

The gadwall prefers to feed on shallow marshes upon weeds, algae and other aquatic vegetation.

Remarks

The gadwall will dive for its food. However, it is a true puddle ducks. Mucky, algae filled shallow sloughs are their delight.



BALDPATE (WIDGEON)

Identification

Male: Crown white, remainder of head and neck speckled black and white except for an irridescent green patch behind the eye. Back, upper breast and sides reddish brown, barred with black on back and sides. White patch at front of wings, speculum black with small spot of green. Female: head and neck speckled grayish brown and white. Back barred with light and dark brown. Wings as in male, but white patch marked with gray. Upper breast and sides buffy brown, under parts white.

Range

Throughout Alberta, winters from middle U.S.A. south to Central America.

Nesting

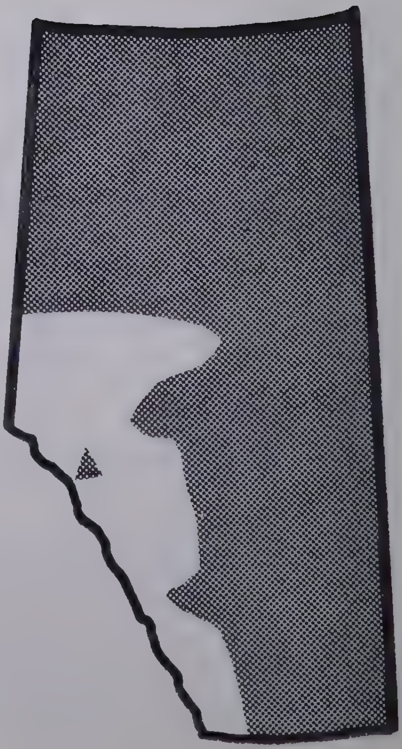
On dry ground near water. Nest of grass and weeds lined with down. Eggs, 8 - 12, creamy in color.

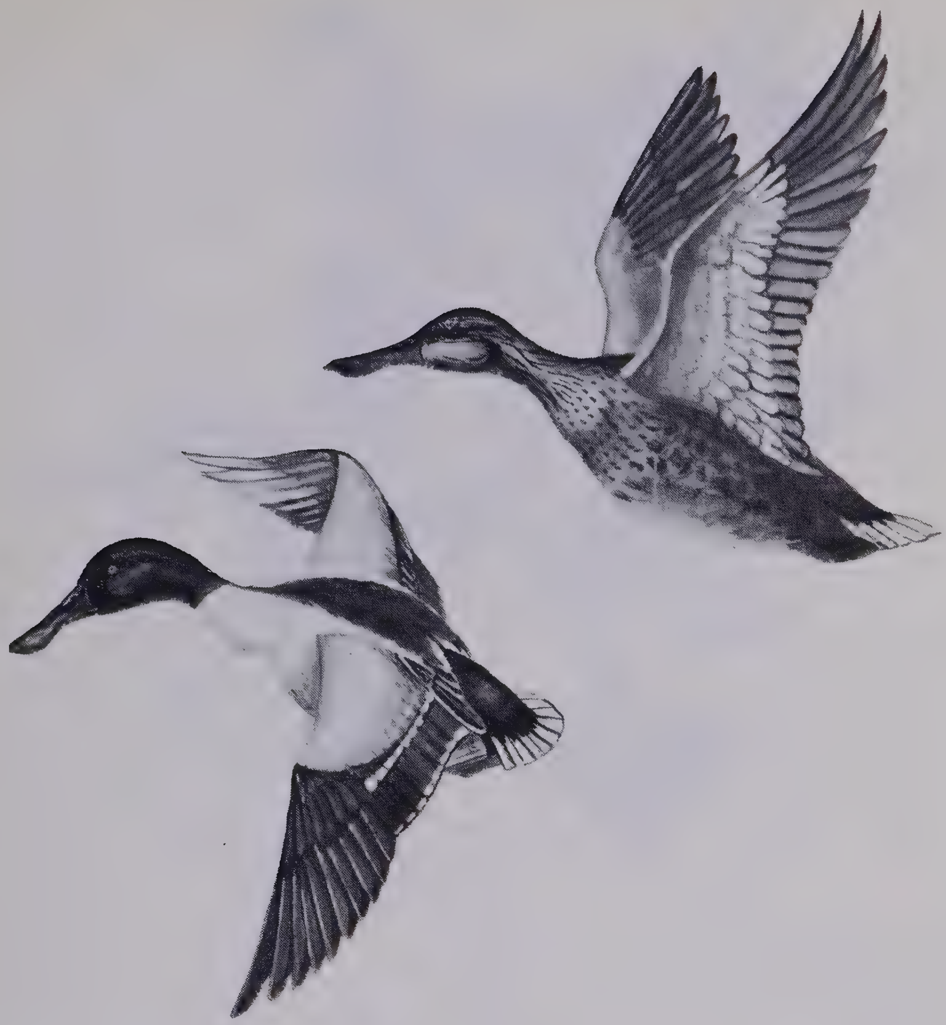
Food

Ninety per cent of food is vegetable matter: pond weeds, grasses and algae.

Remarks

Nervous birds, quick to take alarm. Agile fliers, usually in compact flocks. Flight is fast, irregular, with many twists and turns. When feeding, often accompanies diving ducks and robs them of food brought up from the depths beyond the widgeon's capability.





SHOVELLER

Identification

Male: Dark green irridescent head, large spoon-like bill, white breast, with chestnut sides and belly. Chalky blue patches on fore wings and two diagonal white streaks on back. Whitish tail endings. Female: resembles female mallard, but bill looks too big for the bird.

Range

Generally throughout Alberta, winters on Pacific and in southern U.S.

Nesting

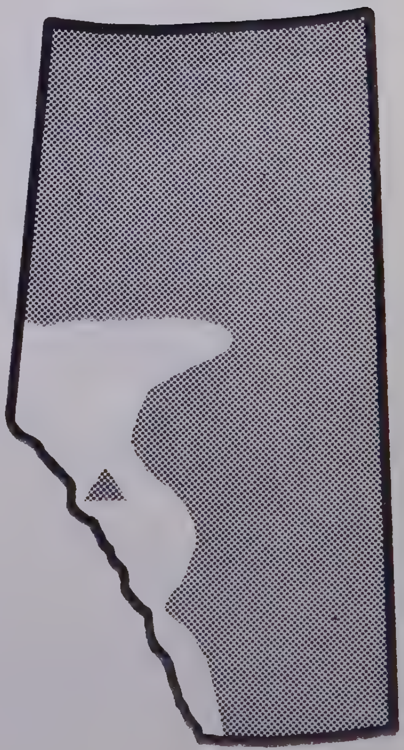
On the ground near water. Nest of grass lined with down. Eggs, 6 - 12, buffy olive.

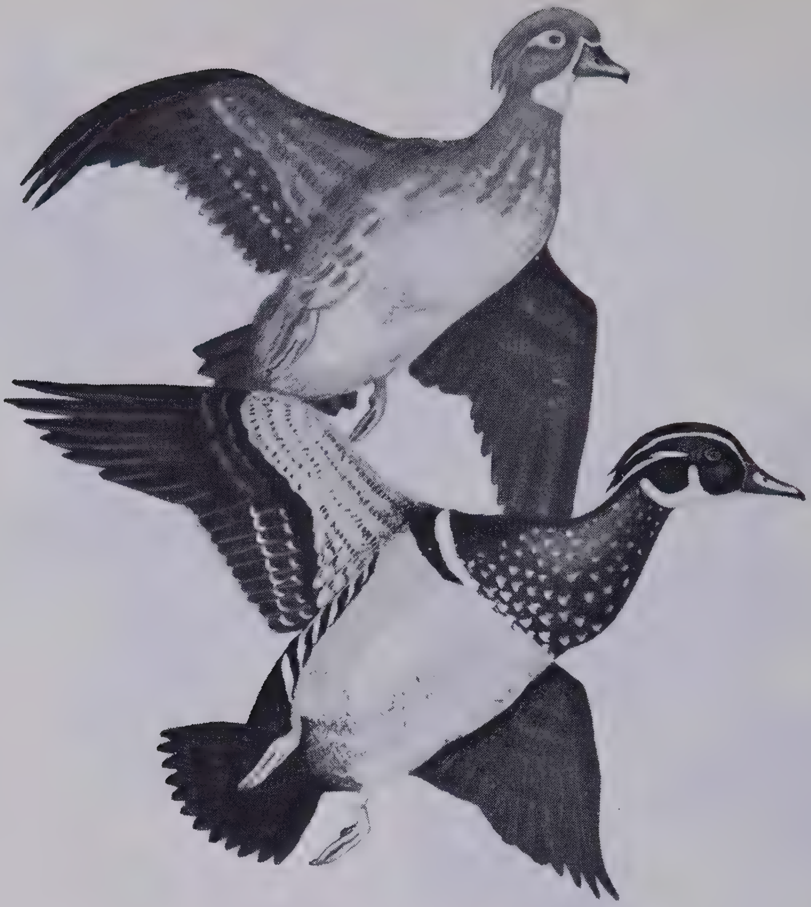
Food

The specialized bill is designed to sift mud and water through the sieve which adorns edges of mandibles and traps the edible material. They feed on seeds and plants as well.

Remarks

Early fall migrant, usual flight is steady and direct. When startled, the small flocks fly erratically, twisting and turning like teal. Greatest number occur in the central and Pacific flyways. Often mistaken for the mallard in flight but the blue shoulders and long spoonbill are evident to the careful observer.





WOOD DUCK

Identification

Male: A small duck with long flowing crest on head and long tail. Crown and crest irridescent green and purple. Rest of upper parts dark irridescent green with bronze reflections. Speculum and much of wing irridescent blue green. Face metallic purple with two white marks extending up from white throat and foreneck. Upper breast purplish brown edged with white in front of wings. Sides olive barred with black and white. Remainder of underpart white. Female: Crown dark brown, rest of upperparts brownish olive glossed with green. Wing as in male but duller. Face brownish except for white ring around the eye. Upper breast and sides brown mottled with white.

Range

Only a very few actual sightings in Alberta have been reported. A pair nested and raised a brood in the Stirling Lake region in 1956.

Nesting

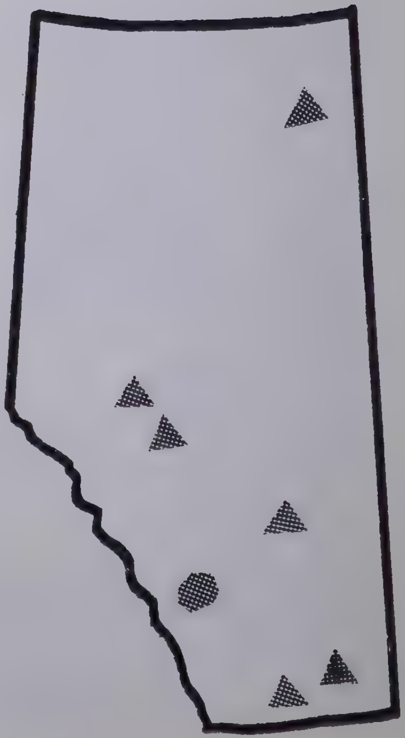
In cavities of trees and stumps. The bottom of cavity is lined with down. Eggs, 10 - 14, buff.

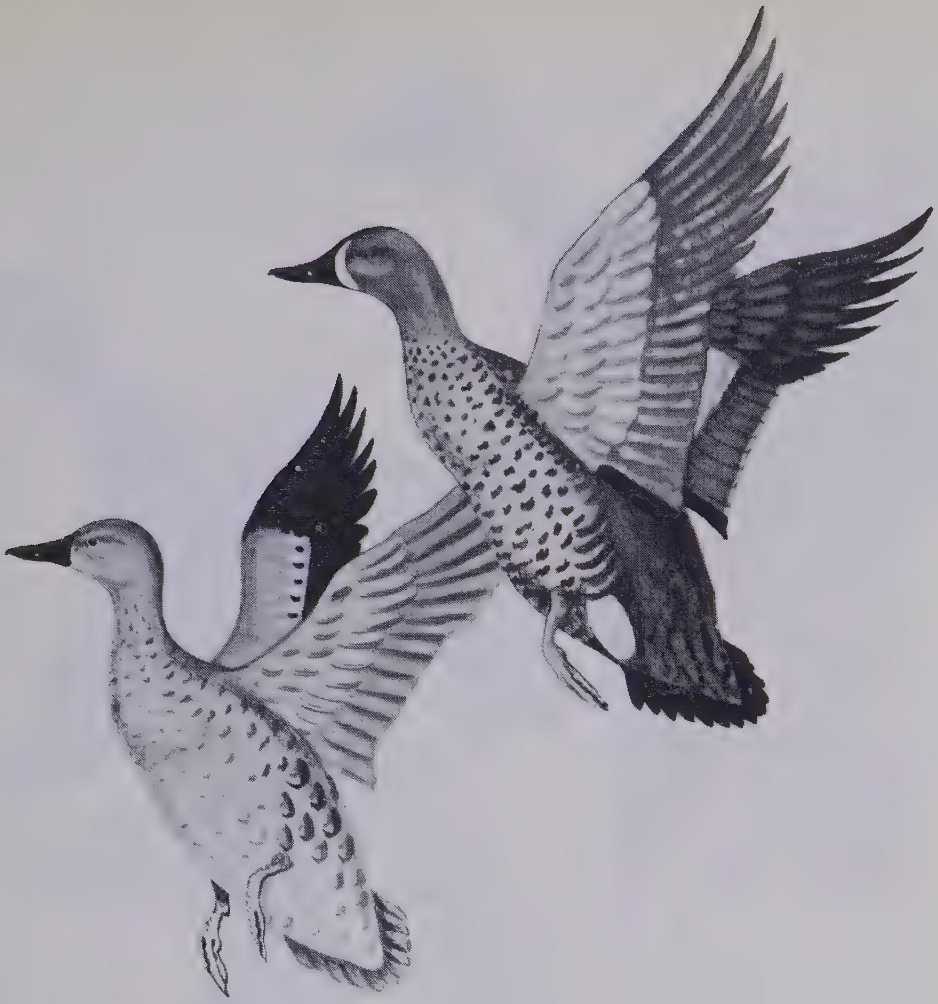
Food

Major part of its food is vegetable matter, bugs, beetles and various insects.

Remarks

Often the bufflehead and the goldeneye — both of which nest in trees, are called wood ducks. Neither is nor looks like the true wood duck. It is the most colorful and the most beautiful of all waterfowl.





BLUE-WINGED TEAL

Identification

Male: Crown black, remainder of head and upper neck bluish gray except a large white crescent between eye and beak. Back is brownish black, large patch on front of wing of light blue. Speculum irridescent green bordered by white on front. Upper parts brown spotted. Tail black, with a distinctive white patch on side of base. Female: Upper parts grayish brown, wings as in male but duller, throat white. Under parts white streaked with brown.

Range

Throughout Alberta. Migrates to southern U.S., Central America and northern half of South America.

Nesting

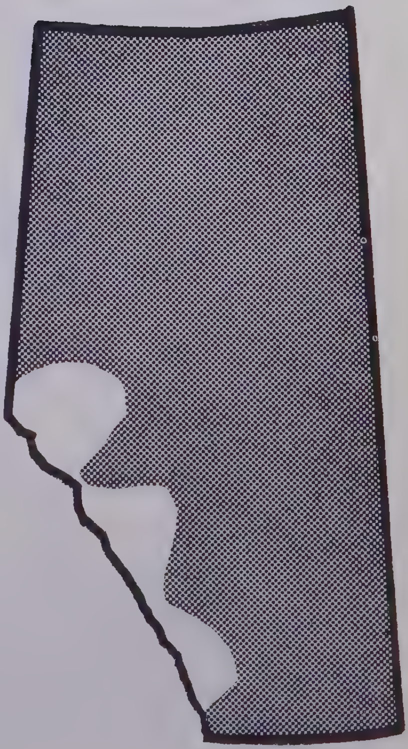
On the ground, not far from water. Nest of grasses lined with down. Eggs, 8 - 12, white or buffy white.

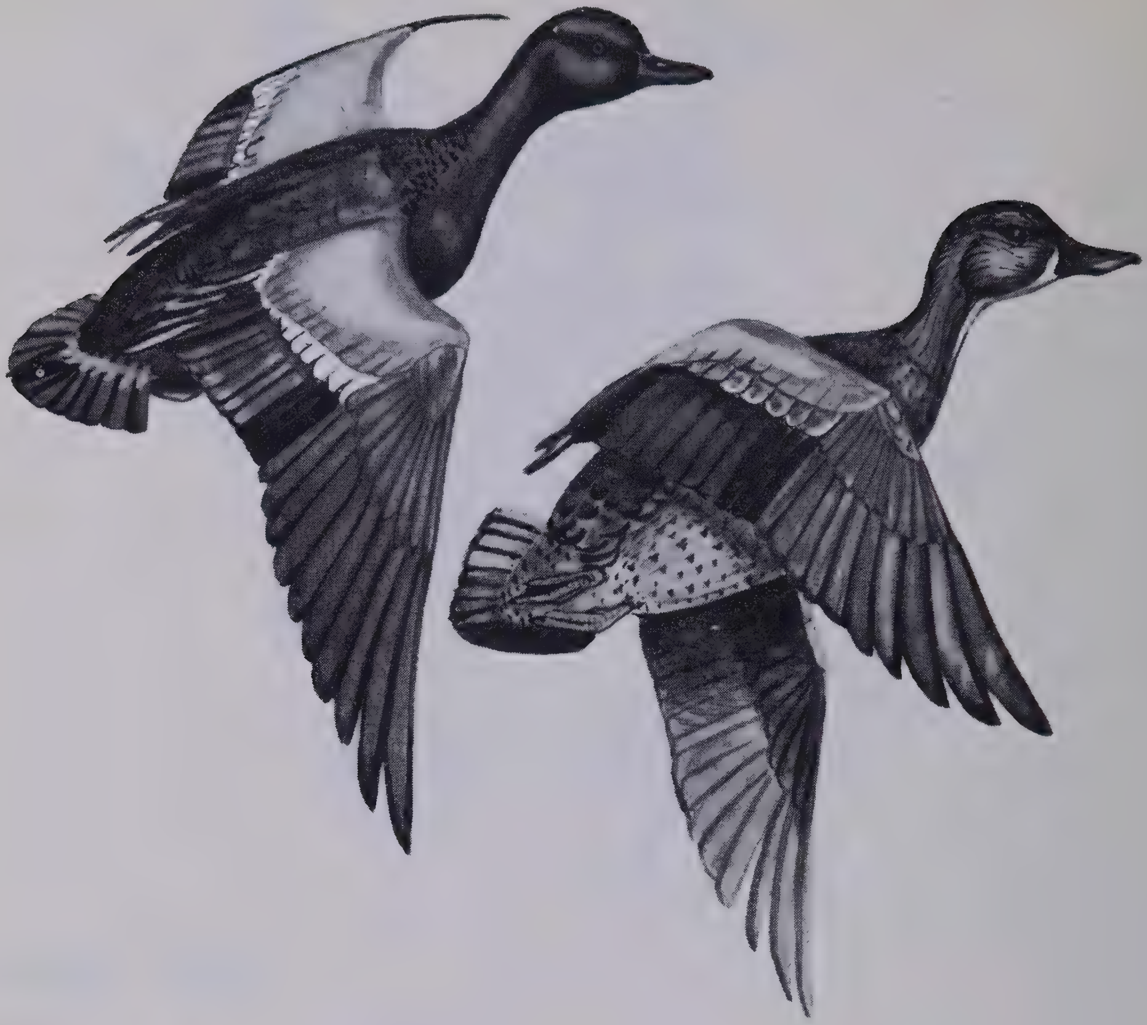
Food

Aquatic plants, seeds, grasses and leaves.

Remarks

Very early migrant; the small compact flocks fly swiftly, often low over marshes, twisting and dodging around trees and bushes. Twittering calls in flight are easily heard. They dabble in the muddy water picking up water insects and algae.





CINNAMON TEAL

Identification

Male: Head, neck, underparts and sides chestnut, crown brownish black, back and tail brownish black, wing is same as blue-winged teal. Female: Similar to female blue-winged teal, but more heavily marked on sides of head and chin, with hint of chestnut on under parts.

Range

Breeds in southern B.C. Fairly scarce east of Rockies although occasional birds are taken in the Red Deer-Calgary area. Some nesting pairs have been reported in the Brooks district.

Nesting

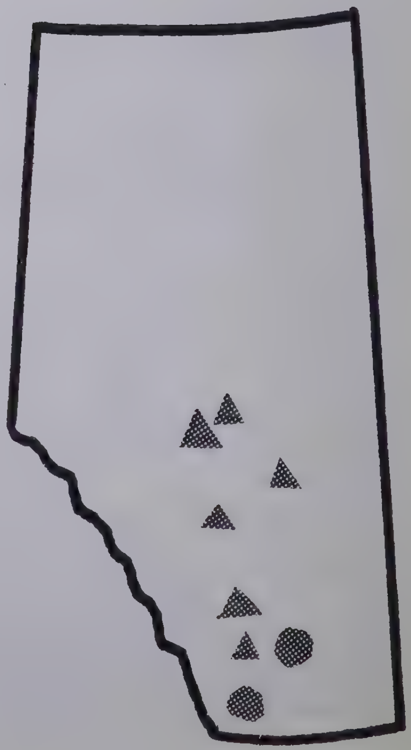
On the ground, usually near water. Nest of grass lined with down. Eggs, 9 - 13, creamy white.

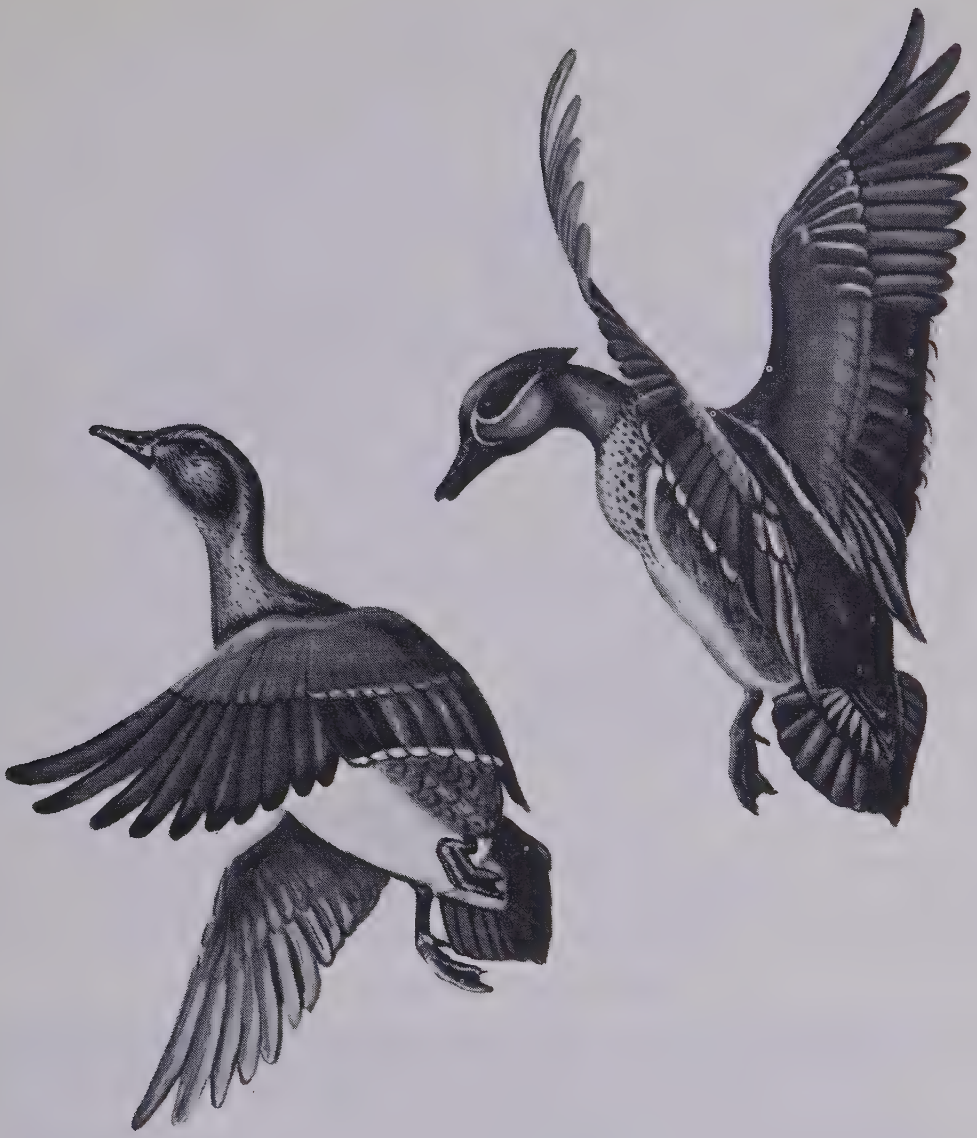
Food

Aquatic plants, seeds, grasses and leaves.

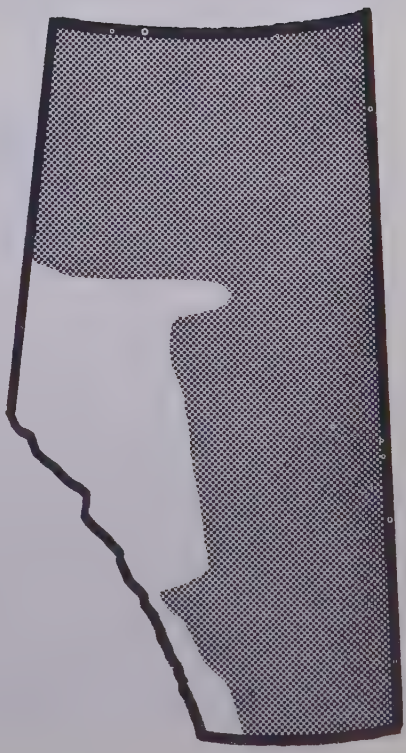
Remarks

In the fall small numbers are undoubtedly shot in Alberta. However, easily mistaken for blue-winged. Rare east of the Rocky Mountains. Flight characteristics like blue-wings, but usually there is only one family in a flock. They are trusting and often slow to take alarm. They dabble in shallow sloughs or sit about on muddy shores during the heat of the day.





GREEN-WINGED TEAL



Identification

Male: Head and neck chestnut except a patch of irridescent green extending from the eye down the side of neck with gray wings and back.

Range

Throughout Alberta; migrates to southern U.S., Mexico and West Indies.

Nesting

On the ground, not far from water. Nest of grasses lined with down. Eggs, 6 - 12, white or buffy white.

Food

Aquatic insects, plants, seeds and grasses.

Remarks

Quite hardy; some birds stay as far north as open water is found. Flight, sometimes in large flocks, always swift, erratic, all members twisting and circling as one unit. It is a very small duck. Nests as far north as Alaska, migrates south through all four flyways. Drakes whistle and twitter, hens have a slight quack.

WOLVES IN ALBERTA

A HISTORY 1800-1969

By JOHN G. STELFOX, Canadian Wildlife Service, Edmonton, Alberta

POPULATIONS

1800–1875 — Period of High Populations

During this period a few white men explored the mountains, foothills and prairies of what is now Alberta and found wolves to be very numerous. This was also a period when the wild ungulate species on which they preyed were abundant. Alexander Henry (Coues 1879) saw many wolves in the foothills west of the Rocky Mountain House trading post in 1811.

Sir James Hector (Spry 1963) found wolves to be plentiful in the mountains of present day Jasper Park in 1858. The Palliser expedition also reported wolves plentiful throughout the prairie and foothills region during the period 1857-60. In the Battle River area 1858 they observed, as reported by Spry (1963: 120) "Hundreds of wolves, drawn by the scent of the meat, lurked around them at a respectable distance;". Again in describing rabies in wolves Spry (op cit) remarked (page 92) "They heard about epidemics of hydrophobia, which sometimes made the numerous wolves especially dangerous in the spring. If a mad wolf bit someone, the Indian cure was 'to sew the patient up in an old buffalo robe and to fling him on a large fire until it is well singed.' The doctor [Dr. Hector] thought that, if the patient survived the treatment, the fright and violent perspiration might help to cure him."

John McDougall, while hunting buffalo in the foothills of the Rockies in 1865 (McCowan 1950), said "I have never seen grey wolves so numerous as now. When we are skinning and cutting up the buffalo they form a circle around us and wait impatiently until we load the meat into the Red River carts. Then as we move away they rush in to fight over the offal."

Even in the late 1850's the Hudson's Bay Co. engaged in strychnine poisoning of wolves along the upper Athabasca Valley to prevent them from killing company horses (Spry 1963). Sir James Hector recounts an occasion along this valley on February 3, 1859 (Spry 1963: 193), "A pack of thick-wood wolves have been killing a number of the horses belonging to the Company during the winter, and the hunter having found a fine young mare just freshly killed the other day, salted the carcass well with strychnine and this morning we set off to observe the effect. . . . On reaching the carcass we found that the strychnine had done its work, for there lay four enormous wolves, besides five or six of a smaller species. . . . The two youngest were nearly black, while the old ones were grizzled grey, like Scotch staghounds."

Some of the abundance of wolves in southern Alberta in the 1860's can be gleaned from the journals of "Kootenai" Brown (1868) who described the number of wolves taken while he and friends were "wolfing": "It was a common thing to get 20 wolves with one poisoned carcass and I've known where 50 to 80 have been poisoned at one time. Old Bill Martin, who was my partner in the Sweet Grass Hills one winter, tells that once he got 120 wolves in one week within 200 yards of a big bull bait. . . . We averaged about 1,000 wolves in a winter."

1875–1915 — Period of Major Population Decline

The disappearance of bison, the depletion of moose, deer and wapiti, in addition to an active poisoning and trapping program during the period 1850 to 1900 was undoubtedly responsible for the rapid decline in wolf numbers during this period (Banfield 1958). By 1879 the last remnants of bison had been driven into north-western United States, and livestock numbers in Alberta rose to a few hundred. In 1890, more than 115,000 head of cattle dotted the country south of the Little Red Deer. "The ranchers fought mange, range fires, wolves, cattle

ROBERT C. GUEST

Wolves were plentiful in Alberta before 1850, but declined in numbers thereafter due to a general depletion of their prey species and an active poisoning and trapping program.

ROBERT C. GUEST

A noticeable increase in wolf numbers was observed between 1934 and 1945 throughout northern Alberta.

rustlers and, worst of all, two disastrous winters — 1886-87 and 1906-07 (Jameson 1955)". Wolves were still common along the foothills in 1885, and were frequently attacking livestock west of Calgary (McCowan 1950: 29).

By the year 1900, wolves were rare along the east slopes of the Rockies and practically non-existent throughout the prairies and parklands. By 1915, wolves were scarce in western Alberta south of the Athabasca River (Millar 1915). Hollister (1912) described wolves as very scarce in the Jasper region in 1912 and quotes Lewis Swift, resident of Henry House, as having killed only two in 19 years.

Of interest is the fact that wild ungulate numbers also declined rapidly during this period. Only an estimated 175 - 365 wapiti remained throughout western Alberta in 1915 (Millar 1915) compared to 8,000-11,000 in 1964 for only that portion north of the Brazeau River (Stelfox 1964). Similarly, bighorn sheep numbers in western Alberta numbered an estimated 1,775 to 3,400 in 1915 (Millar 1915) compared to approximately 10,500 in 1966 (Stelfox 1968).

1915–1940 — Period of Low Numbers

Wolves remained scarce throughout Alberta, at least from the Peace River south, from the late 1800's until the mid-1930's. The one exception may have been the upper Big Smoky River drainage. Big game outfitters and guide Jack Hargreaves of Jasper, Alberta, reported (pers. comm. May 6, 1967) that in the fall of 1917 his brother Roy was circled by a large pack of wolves in the area between the Kakwa and Narraway Rivers. He shot five from this pack of which all were blacks. Jack Hargreaves also mentioned that in 1923 there were 8 or 9 wolves along the Cardinal River near Mountain Park and that they were all greys. Cowan (1947) reported that wolves were exterminated from the Waterton Lakes area about 1922 and that they were reappearing in the early 1940's. During the mid-1930's, Forest Supt. R. Smuland, who was at that time trapping south of Grande Prairie, and trapper Otto Schmidt, south of Valleyview, reported that wolves were absent from these areas until 1936 and 1934 respectively. Forest officer E. Ferguson

(Whitecourt) reported (pers. comm. 1960) that a few wolves were present at the headwaters of the Goose River in the Swan Hills in 1931 and that their numbers increased noticeably since that date. Kindle (1928) makes no reference to wolves in Jasper Park in his lengthy discussion of the fauna of this park in 1928.

The population build-up apparently began in northeastern Alberta and spread in a southwest manner. In the northeast corner of Alberta, Soper (1964) reported wolves to be common in Wood Buffalo park during the period 1932-34 and that they began to increase in that region in 1925. A noticeable increase was observed between 1934 and 1945 throughout northern Alberta (Soper 1964). By the start of World War II in 1939, wolves were becoming quite common between the Athabasca and Peace Rivers (pers. comm. R. Smuland and L. Jeck). In Banff National Park, Green (1951) reported that after an absence of many years, a pair of wolves were observed along the upper North Saskatchewan valley in 1931.

Big game outfitter Leonard C. Jeck of Jasper reported (pers. comm. Jan. 21, 1964) on the build-up of wolves in the Jasper region as follows: "Concerning the wolf situation, this is what I have found out from Jack Hargreaves who has travelled in this country since 1917, also from Art Allen who has been in it since the early 1920's. As early as 1917, there were wolves in the very northern sections, along the B.C. - Alberta boundary, on the Wapiti River and north. These were supposed to be the big black wolves, and actually not too many of them, but apparently they were working south. Then, also south of here and south of the Saskatchewan River there were a few wolves of a mixed breed, greys mostly, and these were working north. Then, apparently, in the 1930's the wolves from the north and south met in the vicinity of Jasper Park. As I mentioned to you before, it wasn't until the late thirties that wolves actually started to be seen in our hunting grounds north of here and south of the Smoky River. This is on the Sulfur River and in that area. From the thirties, 1937, on to about 1950 the wolves were on a rapid increase and by 1953 they were overrunning the country both north and south of Jasper, and they were of a mixed breed. You could see a pack of 14 or more wolves at a time and there would be blacks, greys, yellowish, and varied coloured ones in the same pack. When out in the fall with a hunting party, it was quite common at that time to see anywhere from 8 to 40 wolves each day."

Henry Stelfox (1957) reports that the number of wolf pelts taken throughout Alberta during the year 1932-33 was 100 pelts while 11 years later in 1943-44 the number had risen to 732 pelts.

1940–1960 — Period of High Numbers and a Drastic Decline

Wolf numbers increased rapidly during this period, likely due to light trapping pressure during the war years, 1939-1945, and due to expanding numbers of moose, deer and wapiti (Stelfox 1964, 1968). By 1952 there were possibly 5,000 wolves in Alberta. The anti-rabies campaign during the period October 1952 to February 1956, destroyed a calculated 5,461 wolves of which 90 per cent came from northwestern Alberta. A total of 225 wolves were taken in the Peace River Forest division between February 1952 and March 1953 (Ballantyne 1956). It is possible that 90 per cent of the 1952 wolf population was cropped during the 3.5 year anti-rabies campaign assuming a 20 per cent annual increment (Rausch 1967). Fish and Wildlife Officer Joe Williams picked up 67 wolves during the winter of 1952-53 from his poisoning program throughout the Rocky Mountain House district over an area of approximately 1,000 square miles. By 1956, the results of the extensive anti-rabies predator control program plus mortality from rabies, was reflected in wolf numbers being very scarce throughout Alberta. Provincial Forest Officer reports during the winter of 1955-56 revealed wolves scarce throughout the forested region of Alberta except for the Pelican Portage, Chinchaga River and Bischo Lake localities where they were reported numerous (Stelfox 1956).

TABLE I. Wolf Populations in Northwestern Alberta 1965-66

Wildlife Management Unit	Area (Sq. Miles)	Calculated Wolf Population Minimum	Maximum	Rounded Averages	Density Sq. Miles Per Wolf
F338	700	40	60	50	14.0
F340	2,350	75	100	85	27.7
F342	550	15	25	20	27.5
F344 & F352	1,400	80	125	105	13.3
F346 & F348	2,000	50	60	55	36.4
F350	7,000	150	200	175	40.0
F354 & F356	7,600	175	225	200	38.0
F358	3,000	40	50	45	66.7
M520	11,600	175	225	200	58.0
M522	4,200	0	10	5	840.0
M524	8,500	200	250	225	37.8
M526	6,100	150	200	175	34.9
M528	9,400	200	250	225	41.8
M534	14,150	250	300	275	51.5
M536 & M538	11,500	325	500	335	34.3
S436	250	10	20	15	16.7
S438	950	50	75	60	15.8
S440	1,500	75	100	90	16.7
S442 & S444	2,250	100	150	125	18.1
Totals	95,000	2,100	2,925	2,465	38.5

During the period 1943 to 1946 Cowan (1947) reported the wolf population throughout the 7,000 square mile region of the Rocky Mountain National Parks of Canada to approximate a density of one wolf per 87-111 square miles. During the winter when wolves and wild ungulates concentrated on winter ranges, this density was increased to one wolf per 10 square miles. Cowan reported that this same winter, the range supported a mixed game ungulate population of 30 to 40 head per square mile or roughly 300 to 400 head of game per wolf. For Jasper Park, he estimated the 1942-46 population at 33 to 50 wolves, and that they occurred along the Miette, Athabasca, Whirlpool, Brazeau, Snaring and Snake Indian Rivers although they were not present along the Rocky, Maligne, Cairn or upper Southesk Rivers, the Tonquin Valley or the head of the Athabasca above the Sunwapta. For Banff Park he reported a small resident population present along the Saskatchewan River and along the lower parts of the Howse and Mistava Rivers. Cowan (op cit) stated that the first wolves entered Banff Park in the winter of 1942-43. Fisher (1949) reported that wolves were increasing in number and distribution in Jasper Park in 1948. During the winter of 1948-49 he estimated 35-40 wolves wintering along the Athabasca Valley compared to approximately 30 in the winter of 1943-44. For Banff and Jasper Parks, wardens observed 43 wolves in 1952, only 6 in 1954, and 9 in 1957 (Francis 1958). Annual estimates of wolf numbers in Banff Park from 1944 to 1950 based on warden's reports are as follows (Green 1951):

Year	No. of Wolves in Banff Natnl. Park
1944	2
1945	7
1946	16
1947	48
1948	46
1949	40
1950	38

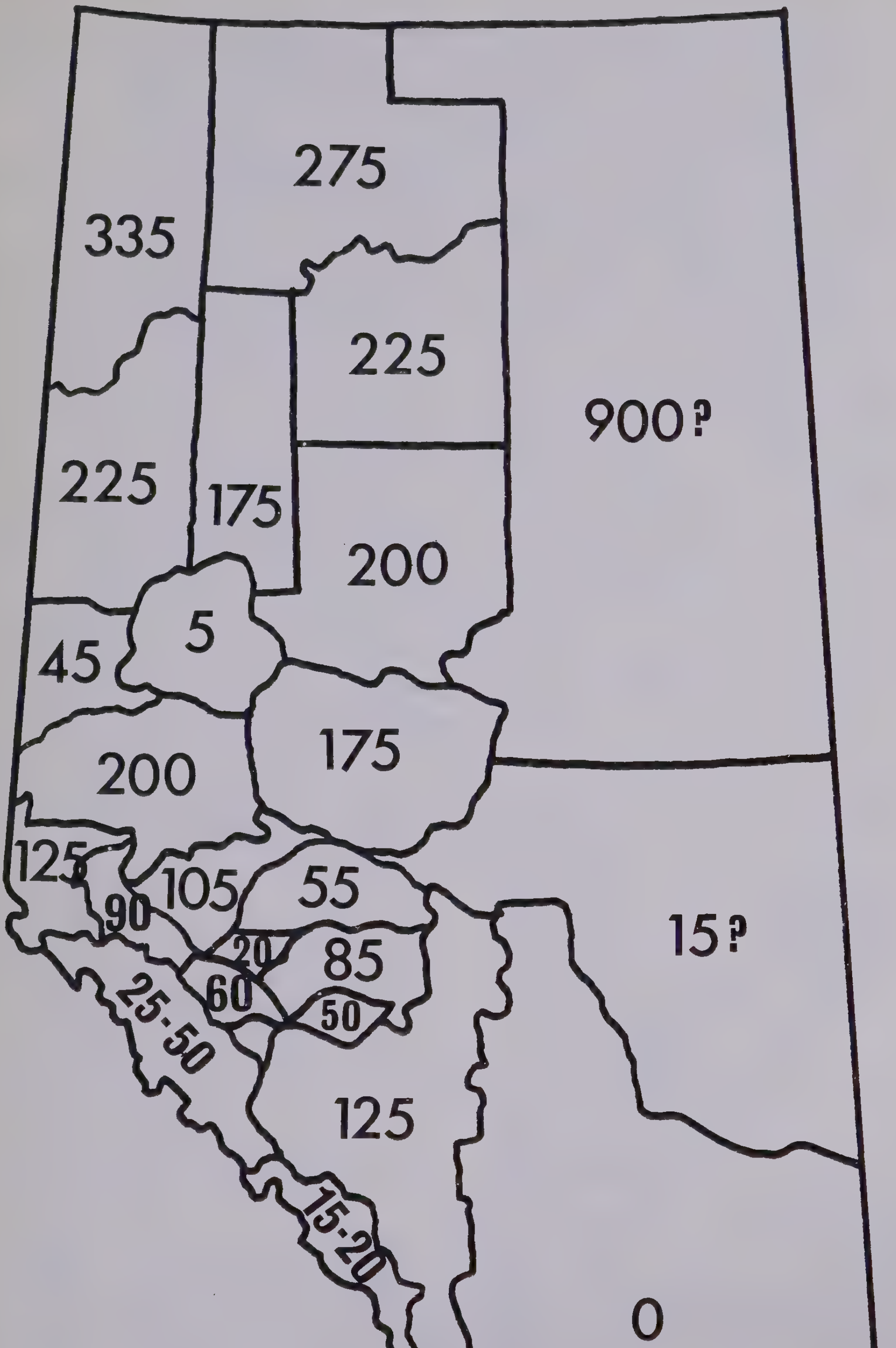


FIGURE 1

WOLF POPULATIONS – 1969

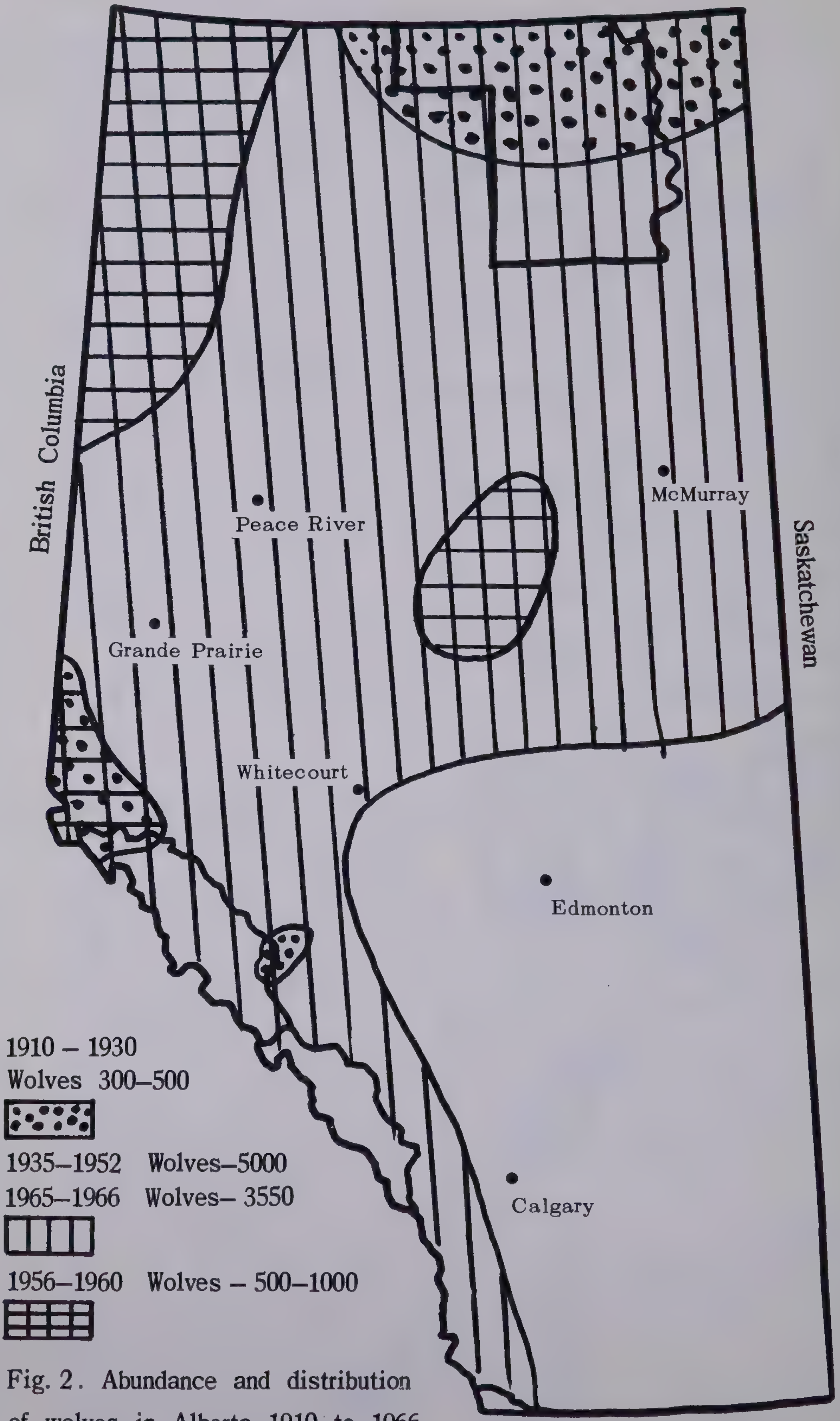


Fig. 2. Abundance and distribution of wolves in Alberta 1910 to 1966.

In Banff Park after wolf control operations during the winter of 1952-53, wolf numbers dropped to an estimated 4 in 1953. The population increased to an estimated 10 to 12 in 1956 (Banfield 1958).

1960–1969 — Period of Increasing Numbers

During the winter of 1962-63 Provincial Forest Officer reports for northwestern Alberta indicated wolves present in 28 of 60 districts. By the winter of 1965-66, 33 of the 60 districts reported wolves present with most districts reporting increasing numbers (Stelfox 1966). Currently, in 1969, wolf populations are well distributed throughout northern and western Alberta north of the North Saskatchewan River. Within the Rocky Mountain National Parks where their distribution following the anti-rabies campaign had been reduced to a small area in the northern part of Jasper National Park, their numbers are increasing and spreading southward.

The 1962-63 wolf population in Alberta was estimated at 1,200 + (Cahalane 1963). The 1965-66 population of northwestern Alberta (north of the Brazeau River and west of the 4th Meridian) was estimated at 2,000 to 2,700 (Stelfox 1966). A more refined estimate places this population at approximately 2,450 wolves. A breakdown of this population into various Wildlife Management Units is presented in Table I.

Figure 1 delineates the areas presented in Table I.

Figure 2 compares the abundance and distribution of wolves in Alberta for the periods 1910-1930, 1935-1952, 1956-60, 1965-1966.

Table I indicates that in 1965-66 wolf densities ranged from one wolf per 15.8 square miles to one wolf per 840.0 square miles, with an average of 38.5 square miles per wolf.

In northeastern Alberta (east of the 4th Meridian) the author has only scant information on wolf numbers since 1956, although population densities appear to be similar to those in Wildlife Management Units F350, M520, M528 and M534 to the west. For the approximate 54,000 square mile forested region north of the Athabasca - Siebert Lake line there may be 900 wolves present if we use a density of 60 square miles per wolf. This would bring the total wolf population for northern Alberta, north of the Brazeau and North Saskatchewan Rivers, to 3,365 animals. In the Parkland-Prairie region, south of the North Saskatchewan and east of the 5th Meridian, there are not likely more than 10 to 20 wolves. In the winter of 1956-57 Fish and Wildlife Officer Wm. Black reported a pack of seven wolves at Dilberry Lake Park north of Provost in Twp. 41 - Rg. 1 - W4 Meridian. During the same winter Fish and Wildlife Officer G. Senz reported a pack of seven wolves seen near the Grizzly Bear School south of Vermilion in Twp. 49 - Rg. 7 - W4 Meridian. One of these wolves was shot. This was probably the same pack observed earlier at Dilberry Lake.

One of the closest reports of wolves to Edmonton was reported by assistant biologist Gerald Kemp in 1966. A pair of wolves and seven pups were observed denning that spring in a farmer's strawstack just north of Lisburn and 7.5 miles east of Sangudo. This location is 55 miles northwest of Edmonton. The author is reasonably certain that he saw at least one wolf in a pack of three suspects in the northern portion of Elk Island Park during a wildlife census in March, 1967. This location is about 15 miles east of Edmonton.

South of the Brazeau River throughout the Foothills and Rocky Mountains (east of the National Parks) there are likely at least 100 to 150 wolves. The distribution is presently spotty but extends at least as far south as Pincher Creek. Mr. D. Simpson of Twin Butte reports that one wolf was shot 20 miles west of Pincher Creek during the winter of 1967-68. Wolves exist along the Brazeau, Nordegg, North Saskatchewan, Clearwater, Red Deer and Ghost Rivers and several of these packs have been reported to be extending into Banff National Park to the west.

Chief Wildlife Biologist Gordon Kerr (Alberta Fish and Wildlife Division) reported (pers. comm.) seeing one adult black wolf in the Crowsnest Pass about 4 miles northwest of Coleman during the winter of 1955-56, and of hearing two or more howling in the same locality about 1957. He reported that four wolves, from a pack of about seven, were poisoned near Water Valley about 35 miles northwest of Calgary in the spring of 1969, and that one or more were shot west of Olds during the winter of 1968-69.

Within the Rock Mountain National Parks east of the continental divide the abundance and trend in wolf numbers during the period 1960 to 1969 is as follows:

Waterton Lakes — No reports of any present. However, there are wolves near this park as big game outfitter Dave Simpson reported (pers. comm. March 27, 1968) that his guides saw two single wolves (1 grey and 1 black) seven miles west of Cameron Lake in October 1966. The previous report of a wolf being shot west of Pincher Creek indicates wolves present 20 miles north of Waterton Lakes Park.

Banff — Populations increased from an estimated 4 in 1953, 10-12 in 1956 (Danfield 1958) to perhaps 15-20 in 1969. As mentioned above, there appears to be some movement of wolves along the North Saskatchewan, Clearwater, Red Deer and Ghost Rivers both in and out of Banff Park. Warden A. Anderson observed an adult pair and a few singles at Saskatchewan Crossing in 1956, one adult along Scalp Creek in 1964 and a pack of three on Bare Mtn. in 1960. Warden J. Rimmer reported having observed tracks of 3 wolves working the upper portion of the Clearwater and into Banff Park in 1963-64. Wolves have also been seen along the Red Deer valley since 1966 from the Ya Ha Tinda Ranch west by both provincial and federal authorities. One wolf was reported shot within the last two years by a big game hunter along the Ghost River adjacent to Banff Park.

Jasper — Populations have increased slowly from a low during the period 1953-57 (Francis 1958) to perhaps 25-50 in 1969. The Big Smoky River and upper tributaries has supported an abundance of wolves for the past 30 years which were evidently too isolated to be noticeably affected by predator control efforts in the 1950's. On Feb. 20, 1955, Warden E. H. Stack shot two wolves and saw another pack of 12 along the Smoky River (Francis 1958). In the fall of 1965 two separate sightings of a pack of 20-25 wolves along the Smoky River 25 miles north of Jasper Park were reported to the author. Warden R. Ranier reported a pack of 20-25 wolves working along the Sulphur River just north of Jasper Park in the fall of 1968. A pack of seven wolves (all black) were seen along Willow Creek in December 1966 by Warden R. Woodward. The author observed a grey wolf crossing the Jasper - Lake Louise highway about 12 miles south of Jasper in the fall of 1967. Wolves appeared to have been absent from the Athabasca valley from the mid-1950's until 1963 when Warden N. Young observed 3 (1 adult and 2 pups) on Devona Flats north of the Athabasca River. Since then sightings have become more frequent.

The above information suggests a 1969 wolf population throughout Alberta of approximately 3,550 animals.

Wildlife biologists Ludwig Carbyn, Canadian Wildlife Service, Edmonton, and Eike Scheffler, Alberta Fish and Wildlife Division, Edmonton, are currently conducting studies on wolf ecology in the western National Parks and on Alberta provincial lands respectively. Their studies will undoubtedly provide more complete information on current wolf populations than the author has been able to present in this report.

PROF. C. G. HAMPSON

Data collected by the author suggests a 1969 wolf population throughout Alberta of approximately 3,550 animals.

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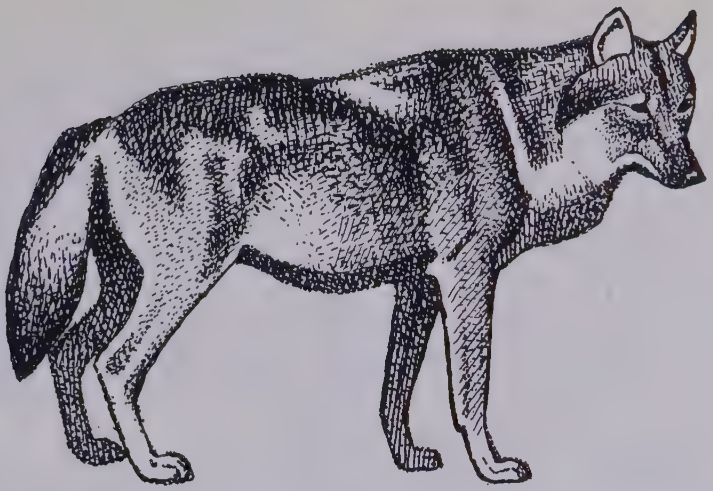
CANADIAN WOLF DEFENDERS

WRITTEN AND ILLUSTRATED BY **ROBERT C. GUEST**

EDITOR'S NOTE: Although some of the statements in the following article are speculative and not generally accepted as facts by scientists in the wildlife field, it was decided that major editorial changes should not be made as the article in whole comprises the philosophical base of the Canadian Wolf Defenders Society. Most wildlife biologists agree, for example, that the wolf population in a given area is controlled by its prey species, a clear contrast to the view expressed here that wolves control populations of game and rodents. Also, there is occasionally a serious problem of livestock losses to wolves in the fringe areas of agricultural settlement. Finally, while we agree that most hunting is not done out of necessity, there is a mass of evidence contradicting the theory that hunting "too often seems to work against the preservation and existence of wild animals". Certainly, the wolf is an interesting and desirable member of the wildlife community and as such, should not be eliminated, but normal hunting pressure poses no such danger.

Canadian Wolf Defenders is a recognized natural history society. It is a non-profit organization set up to develop interest in, and understanding for, the wolf and its smaller cousin, the coyote. We now have members throughout Canada and from many parts of the United States numbering close to 300. Although our society had its beginning just over a year ago, it is already necessary to establish regional chapters that will handle local affairs and represent certain areas better.

We have received a lot of support and encouragement from various conservation-minded organizations. All of these are to be commended for their untiring efforts and fine accomplishments in saving wildlife. Still we feel there is a real need to specialize where wolves are concerned, as they are, by tradition, branded as being "dangerous" predators. And it will take years to help the public see the wolf in a better, more reasonable light. It is our duty to search out facts and information that will develop sincere interest before it's too late.



We would like to give nature lovers a new angle to consider. This includes nearly everyone, for, given a chance and with some encouragement, most people become fascinated with the wonders of the natural world. We hope they will see the wolf as part of it and have the same people take a stand against various extermination campaigns. Perhaps they in turn will help others to appreciate the place of the wolf in the fauna of North America. But time is not on our side. A lot of myth must be explained away or disproved.

In the first year our society has accomplished two things. First, we have gained the interest and backing of many new members representing different parts of this continent. It includes people from many walks of life who, in a lot of instances, are very qualified to help and advise us in our work. We are indeed fortunate to receive support of this kind. Also, certain members and friends of our society have very generously donated far above the required membership fee, making it easier for us to advertise more effectively, as well as to cover other expenses. Secondly, we have made certain organizations, newspapers, government departments and members of the general public aware of

R. Guest. 1961.

R.Guest 1959.

our intentions to see wolves protected like any other interesting form of wildlife.

Everyone ought to know what poison does when placed in the wilderness for wild animals. It should be pointed out how, aside from wolves, a variety of birds and mammals fall victim to this inhumane way of killing. It was recently estimated that only one out of every sixteen creatures poisoned was a wolf even when poison was placed in wolf territory. Bounties and the use of poisons are a direct misuse of our natural heritage. Hunting for the most part must be recognized for what it is and not be confused with vague, long-range conservation schemes. It is a luxury which too often seems to work against the preservation and existence of wild animals. At one time hunting of game such as deer or elk was perhaps necessary for survival in this country. However, times have changed and we fail to see why predators such as the timber wolf must face extermination just so certain people can have their "sport". Farley Mowat recently wrote, "Beware of men who would slaughter the wolves so they may kill more deer".

Although the thought of having wolves included as big game on a tag system does not appeal to many of us, there are some advantages in this. For one thing, in areas where wolves are hunted like any other game animal, the spreading of poisons would be automatically outlawed. And it takes a pretty good hunter to get close to a wolf!

From various government bodies our society has received help and co-operation which is much appreciated. However, there is still much to be learned about the status of the wolf, especially where the Federal Government is concerned. The Alberta Fish and Wildlife Division of the Dept. of Lands and Forests has established a very broad-minded policy toward wolves, one which we believe is among the most advanced in North America.

* * *

In the following section several points are covered, mainly in answer to questions sent in by members.

1. "There are no documented cases of a human having been killed by wolves in Canada" (Dr. D. H. Pimlott, University of Toronto). It is true, however, that a cornered wolf or one that is trapped may resist fiercely. The same applies to any wild animal. Most of the adventurous campfire tales about wolves

are of European origin and may or may not be true.

See ("Wolves and Men in North America" by Dr. D. H. Pimlott, p. 36-38).

2. For centuries wolves have lived in harmony with game herds here in North America. There was no extermination of any wild animal because of their presence. Only within the last 200 years or so has the balance of nature become seriously upset due to man's intervention.

See ("The Big Game Animals of North America" by Jack O'Connor, p. 249, "The World of the Wolf" by Rutter and Pimlott, p. 109).

3. The wolf keeps the caribou healthy. The wisdom of this Eskimo belief also refers to other wilderness areas of North America. From recent observations it was estimated the wolves get approximately 50% of the deer they chase and as low as 7% of the moose. Usually sick and infirm animals are the first to fall which is nature's way of keeping the herds healthy. In parts of the United States and Canada ungulates starve to death because of overpopulation. Natural predators were eliminated from these same places.

See ("Never Cry Wolf" by Farley Mowat, p. 199).

4. Livestock losses attributed to wolf packs generally is no longer a serious problem. Although there are certain instances where domestic animals are taken, this sort of loss is usually limited to areas bordering wilderness. Losses of this kind are to be expected wherever farms continue to invade what is left of our wild country, or where cattle are literally turned loose to graze over vast tracts of forested land. Many of the animals found dead are not killed by wolves, but are victims of vandals, bears, poisonous plants, snares and barbed wire, also domestic dogs which band together and run at night. Too often when it's impossible to tell just what caused the death of a sheep or cow, the owner assumes it to be the work of wolves.

5. Aside from being a valuable part of Nature's plan by controlling populations of game and rodents, wolves are well worth study in their own right. Most naturalists agree that the wolf is the most intelligent of land mammals and yet, ironically, is the most misunderstood by man! Wolves are often tamed and become docile and devoted like the

best of domestic dogs. Personally, I would not trust many dogs as I have a tame wolf.

6. The wolf population is almost always overestimated. Because this animal is such a wary one and because his kind is by nature a perpetual traveller, it's not easy to observe him and tracks are confusing. By unfortunate tradition the word "wolf" stirs unreasonable fear and makes it easy to exaggerate their presence in a given area. For example, in a recent case a reported pack of fifty animals was found to be a family group of seven! An overcount of this type is fairly common (near Whitecourt, Alberta). Let's hope the truth was discovered before poison was discreetly distributed in the same area!

7. During the rabies epidemic of the early 1950's a lot of poison was placed out in the wilderness and border areas to kill carriers of that disease. There were intensified efforts to poison wolves and coyotes and of course many were taken along with other forms of wildlife. However, in one area studied, a later survey shows that out of approximately 2,365 wild animals with rabies, only 12 of these were wolves or coyotes! Apparently wolves are not much affected by this disease so we question the need for all that poisoning.

See ("Wolf Control in Canada" by Dr. D. H. Pimlott, p. 8).

8. Does the concern for a well-lined pocketbook go just a bit too far? It is too often a shoddy excuse to invade a natural environment, a natural heritage which belongs to everyone and not just to the affluent sportsman, the industrialist or the rancher. And yet there seems to be great emphasis on keeping this sector of our population well supplied with whatever they demand from our country and its wildlife. Before it's too late, and while there is yet some choice wilderness on this continent, let's do whatever we can to have it saved. Don't hesitate to speak out. The decision-making ranks of our country must realize that the rights of the citizen cannot be so easily traded off. There should be more wildlife sanctuaries. Within a few years lumber companies, the oil industry and the ever-spreading grazing of livestock will take the best of it. The national parks such as Jasper and Banff are too high up for game populations to successfully last out the heavy snows of winter and therefore predators as well leave the same areas and become vulnerable to illegal campaigning.

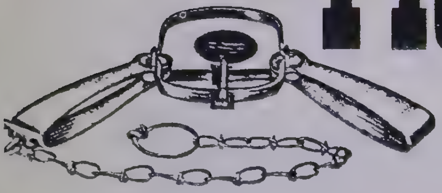
9. Although we don't like the idea of it, in our society we try to keep an open mind about necessary wolf control. If, on the odd occasion there is some justification to thin out an offending pack and if it is proven how certain animals have taken livestock, particularly in a settled area, then we agree some action must be taken. This could also apply to unusually bad circumstances where game is concerned. But any control measures must be carried out in specific areas by properly qualified personnel. Poisons must be avoided if at all possible.

10. As soon as possible, laws should be passed which would reduce the slaughtering of coyotes and other wildlife by skidoos. It has made law-breaking easy and too many people have taken part in a "sport" that amounts to nothing more than brutality. Often the running-down of game occurs in remote places off the main roads, where it's impossible to keep track of the law-breakers. Other than a primitive blood-lust, we wonder what the reasons are for such relentless killing of an interesting, useful creature such as a coyote. [In 1969, the Alberta Game Act was amended, making it illegal to discharge a firearm within 50 yards of a snow vehicle, or run over or injure a fur bearing animal with a snow vehicle—Ed.]

* * *

Toward a world of nature and the culture of man wild animals have made a lasting impression. Any who value this, know the wolf has a place.

"TRAPPER ROY"



by RED HASAY

"Trapper Roy" . . . Roy Mockler, was born in New Brunswick on January 14th, 1904. He was one of nine boys and seven girls in a family of Irish and French descent. The community he lived in was predominantly French and at a very early age he became thoroughly bilingual.

In those days, formal schooling was not considered of prime importance, but Grand Falls, N.B., was a heavily wooded area, so it was therefore a must for a boy to learn the ways of the woods in order to make something of himself. His first job, at eight or nine years of age, was helping his father in the woods, cutting wood for lumber.

It was not until Roy had had a full year of "woods learning" did he take to trapping. His first commercial fur was a mink, which netted him five dollars.

At the age of 13, Roy left home to make his way in the world. He held many jobs — from lumbering in Quebec, tobacco picking in Ontario, commercial fishing off the East Coast of both Canada and the U.S.A., to working in the off-season on his little farm in Grand Falls.

RED HASAY

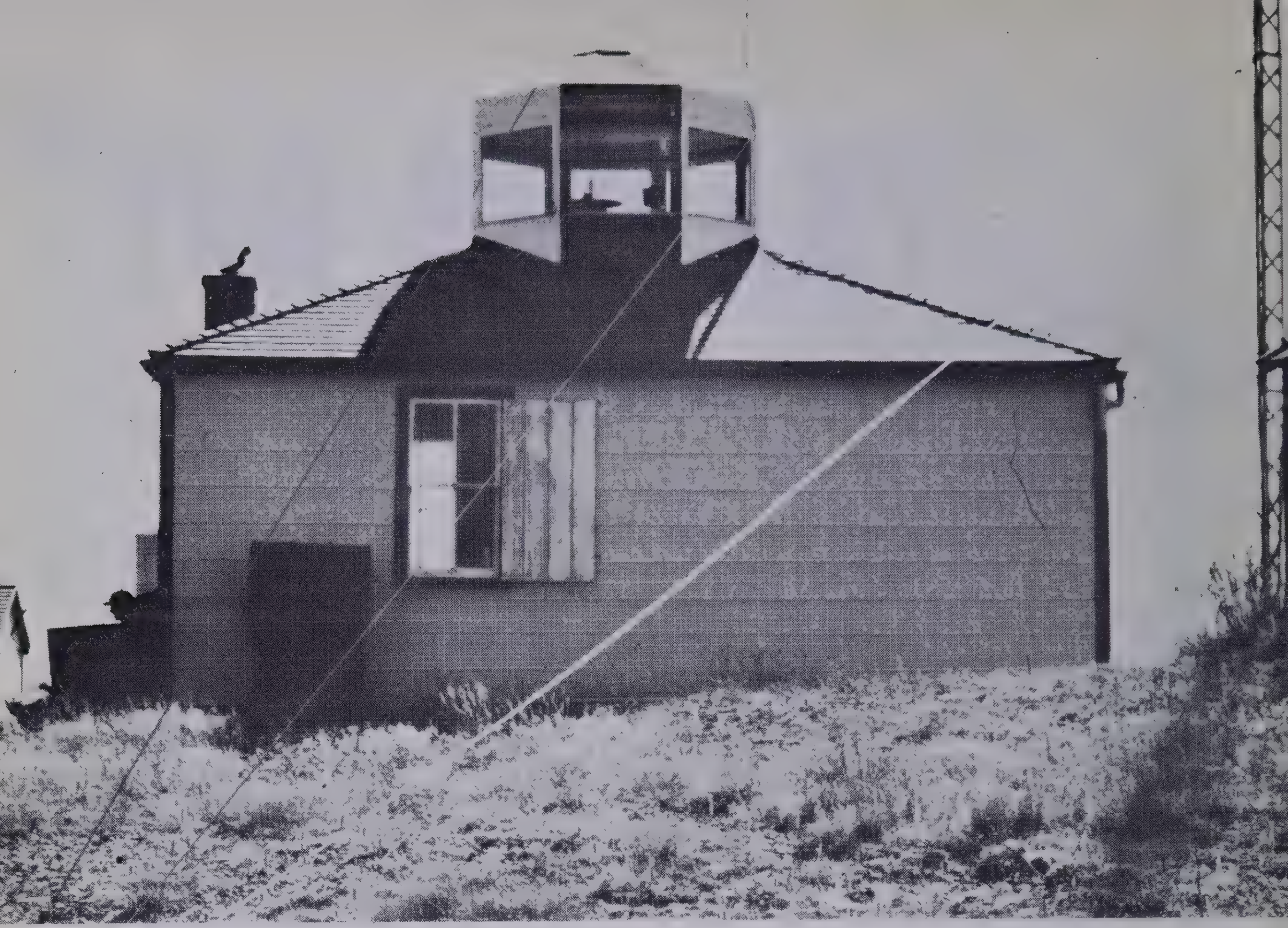
However, no matter how many different jobs Roy worked at, the "Call of the Wilderness" always brought him back to the woods. No matter how bright the city lights, or how glamorous the industrial future, Roy always returned to nature.

New Brunswick soon became "overcrowded"; trapping became a lost art, and the woodsman was becoming a thing of the past, so Trapper Roy decided it was time to move to new frontiers.

His family was scattered throughout North America; a brother in British Columbia, another in Alberta, and another in the State of Maine. He looked west, as his brother in British Columbia had told him there was a good living to be made lumbering in the pulp and paper industry along the west coast. His other brother in Alberta advised him there was to be a paper mill in the foothills of the Rockies. Roy then decided to journey west. He knew that if he accepted the west coast job, there would be no trapping, so he had a look at the possibility of getting himself a trap-line in Alberta.

It took two years or so before a line did come open, and Roy immediately bought the traps, snares, line cabins, etc., from the retiring trapper and set up shop. At last Roy was in his element again. However, it did not provide the amount of money he required, so Roy went to work for the Alberta Forest Service during the summers.

Whether trapping or doing forestry work, Roy finds his spare moments are spent with his little "friends", the creatures of the wild. His observations of wildlife are very thorough and exact and he is particularly well informed on the habits of the wolverine, the fisher and the beaver. Roy not only tells of these animals' habits, but is able to color their everyday life with a bit of "human" interest. To him these creatures of nature lead lives much like the human race. They experience sorrow as well as pleasure, and he says they show their emotions much like we do.



Grave Flats Lookout

GRAVE FLATS LOOKOUT,
% DEPT. OF LANDS AND FORESTS,
ROBB, ALBERTA.
SEPT. 13, 1969.

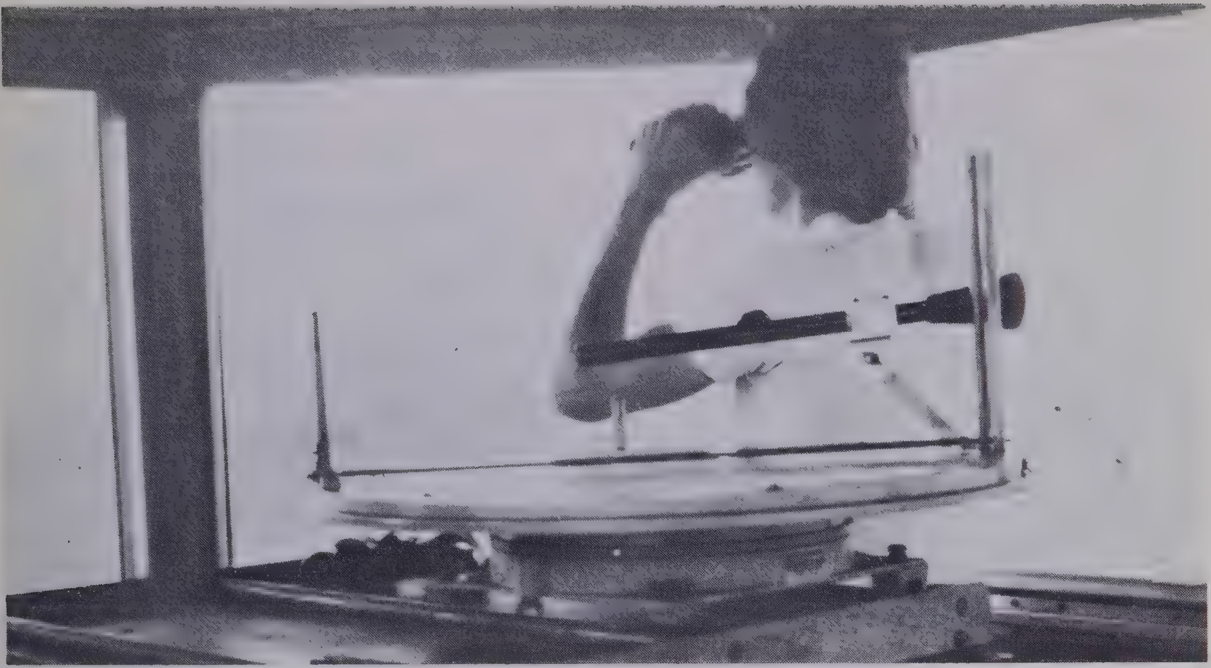
DEAR EDITOR:

Dotted across the forests of Alberta, approximately every 20 miles, are the fire lookouts. Lookouts with such historically romantic names as "Chinchaga" or "Kakwa". Others bear names like "Ram", "Buffalo" or "Moose Moutain". Still there are those that are, perhaps descriptively, but far from attractively named "Nose Mountain" or "Pimple".

But, of course, names make little difference. All are there for the same purpose, to watch for and report fires as quickly as possible. These stations, often lonely and inaccessible, are of two types, either a tower or a lookout. The only difference being that whereas a tower has its cupola atop a steel tower of anywhere from 30′ - 100′ high, the lookout has its cupola built right into the roof with access through a trap door in the kitchen ceiling.

It is in one such lookout that I have been spending the 1969 season beginning on May 6th.

Twenty-four miles south of Robb, Alberta, in the Edson Forest, at an elevation of 6,804′ above sea level is found Grave Flats Lookout. The name is derived from the flats which lie north and east below the hill on which the cabin sits. On the eastern edge of the flats a visitor can see, fenced off, an old grave marked by a rough wooden cross. Buried here is an Indian Chief known as Chief Cardinal after whom the Cardinal River of the area is named.



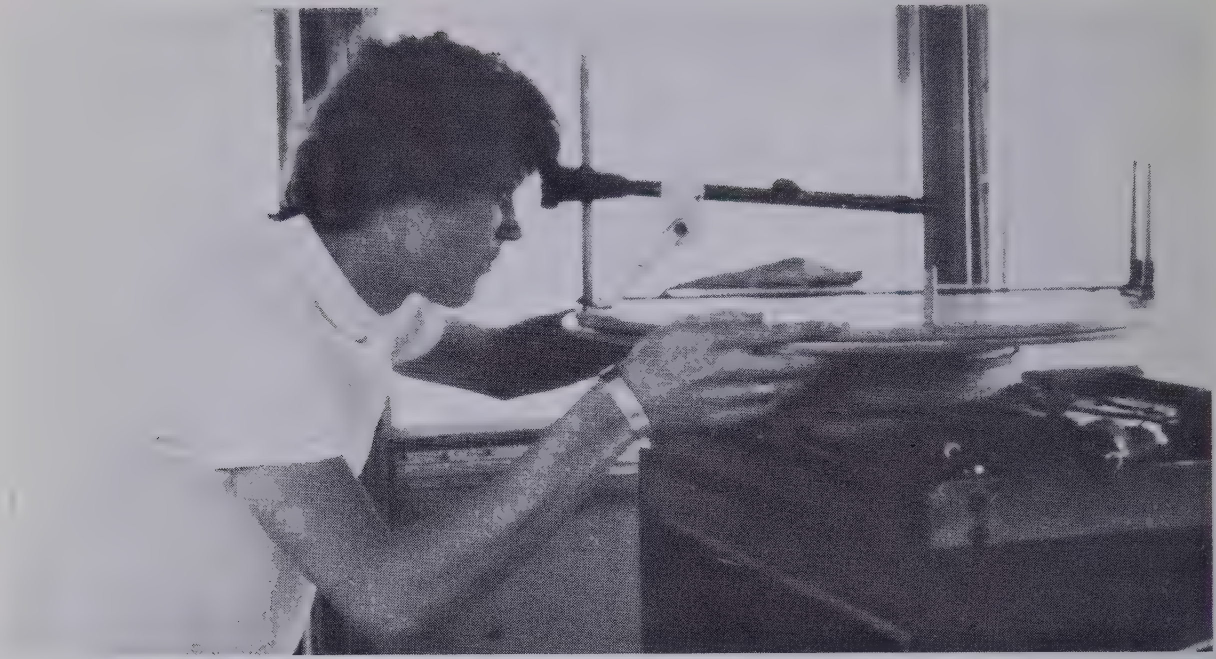
RED HASAY

Douglas Clough scans the area surrounding Grave Flats Lookout.

The life of the forestry towerman is not busy; indeed, the only scheduled duties being two weather reports per day, one at 8:00 A.M. and a second at 1:15 P.M. Other than these, the job entails periodic observations of the surrounding area, the frequency of these depending on the Fire Hazard for the day. Unless a smoke is spotted or there are lightning storms in the area to be traced and recorded, I spend the day reading or playing my guitar, with the periodic checks for smoke. If the fire hazard builds up to very high or extreme, then almost the entire day is spent in the cupola. In the case where a smoke is sighted, a bearing is taken on the "Osborne Fire Finder" and if possible a cross shot given by one of the nearby towers. With the bearings from two towers, it is possible to get an almost exact location on a map by

C. E. HAGLUND

View to the southwest from Grave Flats Lookout.



RED HASAY

When a smoke is sighted, a bearing is taken on the Osborne Fire Finder to pinpoint the exact location of the fire.

drawing out their direction in degrees and minutes. Otherwise, with no cross shot the tower man must estimate the distance with the help of panoramic photos, known land marks and a topographical map.

Constant radio communications are maintained by two way radio which when not in use for transmitting is left on "standby" (can receive but not transmit) until needed. A light plant generates electricity so that, depending on the tower, many have television reception.

Grave Flats Lookout, being in the heart of a heavy tourist area, is frequented by many visitors who drive up out of curiosity or just to see the view. And the view from here is well worth the five-mile drive up from the forestry trunk road. On a clear day you can watch the foothills tumble away to the north for almost 100 miles, while to the south stand the Rockies, less than 10 miles away.

The 1969 fire season, for the Edson Forest anyway, has been relatively quiet due to above average precipitation reported at most stations. Heavy rains in mid-June and early August have kept the hazard from reaching "Extreme" in my area; in fact for most of the season the Fire Hazard has remained Low or Moderate. Due to the low danger, I have done quite heavy reading, on one stint I read forty-two books in fifty days, which was well above my seasonal average of two or three comic books (if I'm lucky) per year.

Grave Flats Lookout usually remains open, depending on the weather, until mid-October, but this can vary from the end of September until early November. A fine dusting of snow which fell on the mountains last night leaves a hint of winter and whispers a promise of an early tower closure, when I will return to my home in Edmonton and once again marvel in the little appreciated glories of a bath tub.

Yours truly,

Douglas A. Clough

ED LANGFORD

ALTA. GOVT. PHOTO

Ed Langford started working with the Fisheries Branch under the Department of Agriculture as a Fishery Inspector in 1937.

He was born on June 11th, 1909, at Red Deer, later moving to Mulhurst where he did farming, trucking, worked in a sawmill and was an Assistant Postmaster. Ed served with the 133 C.I.B.T.C. Infantry Corps from October 13th, 1942, to December 17th, 1945, spending 3½ years overseas. In August, 1955, he was transferred from Mulhurst to Edmonton as a Fish and Game Officer with the Game Branch. This position was later changed to a Fish and Wildlife Officer, and Mr. Langford served in this capacity in Edmonton until his retirement from the department on June 30th, 1969.

Since his retirement, Ed and his wife Margaret, along with their daughter Betty, have taken up residence at Nanaimo, B.C., where Ed is presently keeping busy building a new home overlooking the coast. Ed Langford will be missed by his many friends in the department who wish him many years of happy retirement.

JIM CHERREY

James Cleveland Cherrey was born on March 31st, 1906. At the age of 17 he started working as a Clerk with the Queen's Printer in Edmonton and transferred to the Department of Agriculture on March 1st, 1926. The responsibility for the administration of game was then with the Department of Agriculture and Mr. Cherrey was one of four employees transferred from the Department of Agriculture to the Department of Lands and Mines when game management was assumed by that department in 1937. On April 1st, 1949, these responsibilities were taken over by the Department of Lands and Forests and Mr. Cherrey was again transferred to continue his work in this area.

Mr. Cherrey worked with every detail of the accounting and licensing in the Game Branch from the time it was administered by the Department of Agriculture. He continued looking after these responsibilities as a Clerk and Chief Clerk through to the position of Administrative Officer at his retirement on September 30th, 1969.

LANDS & FORESTS PHOTO

Mr. Cherrey saw the Game Branch grow from the staff of four to a staff of 176 in the Fish and Wildlife Division at the time of his retirement. An indication of his dedication are the years that he has worked since he was eligible for retirement and only retired on September 30th, 1969, with much regret, on the advice of close associates.

Jim married Ada Castor in 1938 and he and his wife raised two children. Since his retirement, the Cherreys have taken up temporary residence in Arizona. Jim will be long remembered by his many friends in the government, particularly in the Fish and Wildlife Division.

FISH AGE AND GROWTH

MICHAEL R. ROBERTSON
REGIONAL FISHERY BIOLOGIST

Most people are relatively familiar with the inside of a tree. Whether seeing a cross section of a tree in a museum or cutting one down with a chain saw or axe, it is hard to miss the concentric circles which occur in the wood of the tree and which can be easily counted, each circle representing one year of growth. These circles are the result of the growth pattern of the tree, a pattern which relies on our north temperate climate with its cold winters and warm summers. While the inside of a tree may be relatively familiar to all of us, a knowledge of fish anatomy is not so common. Fish, however, have one thing in particular in common with trees: namely concentric circles on some part of their anatomy which inform us of their age.

Freqently, people will come to a Fish and Wildlife Office with the news that they have caught a particularly large fish. Subsequent to their arrival at the office, they generally want to find out how old this fish is. The biologist of whom the question has been asked will merely require some scales from the fish and a little bit of time before coming up with a reliable answer. In many cases the angler is fairly surprised because a particularly large fish may not have been the 10, 15 or 20 year old fish that he thought it would be, but perhaps was only 3, 4 or 5 years old. On the other hand, a markedly smaller fish may be fairly old in terms of fish age. What causes these differences in sizes of fish at different ages, and how can one tell just how old a fish is?

Fish are what are commonly known as cold blooded animals. That is, their body temperature is the same as the water in which they swim. The body processes of any animal are largely temperature dependent. They are primarily chemical reactions and, like all chemical reactions, the higher the temperature the faster the chemical reaction will proceed. Consequently a fish in

M. R. ROBERTSON

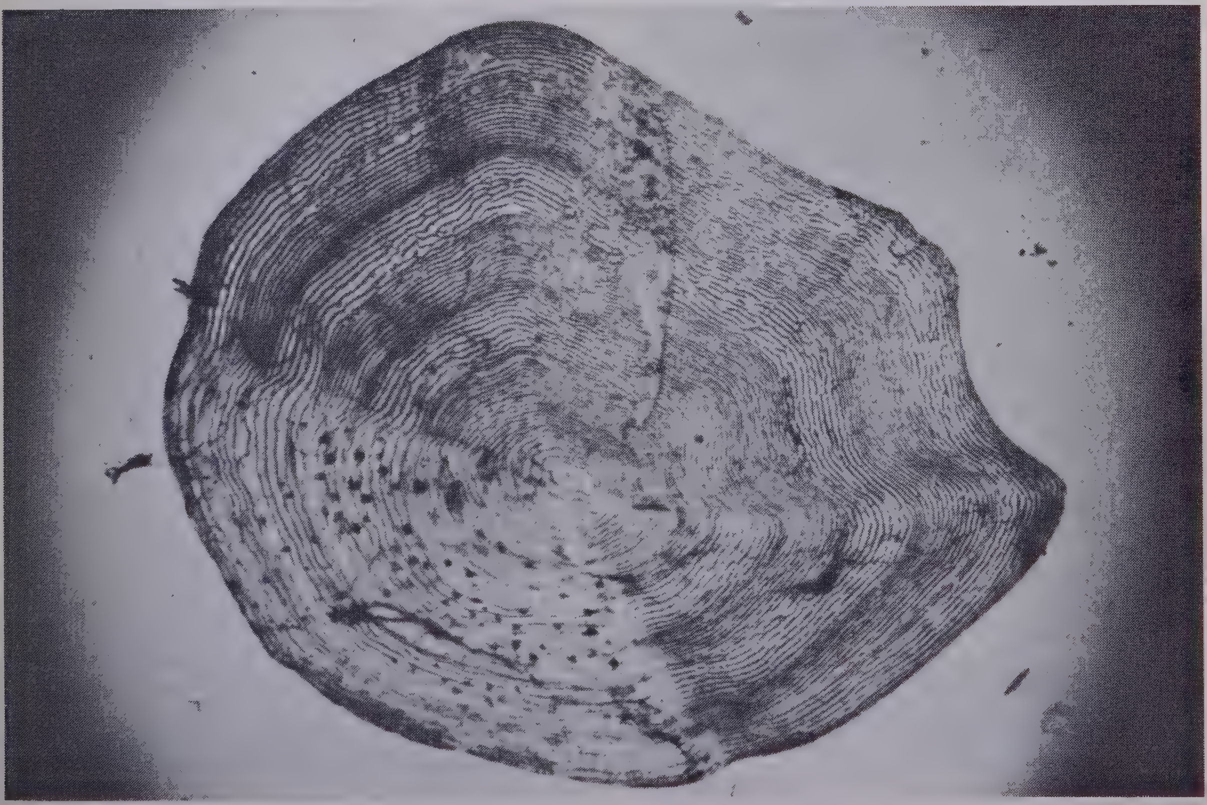


Fig. 1. Scale from a three-year-old whitefish.

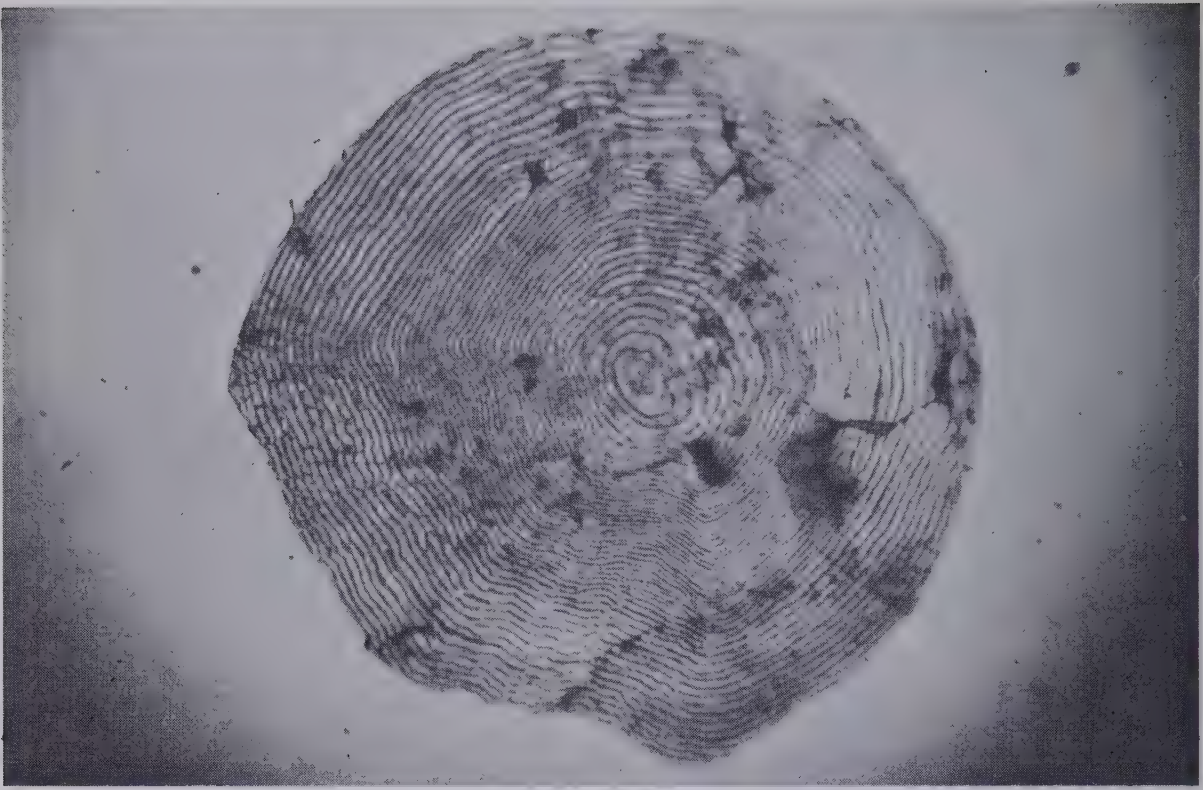

M. R. ROBERTSON

Fig. 2. Scale from a one-year-old whitefish.

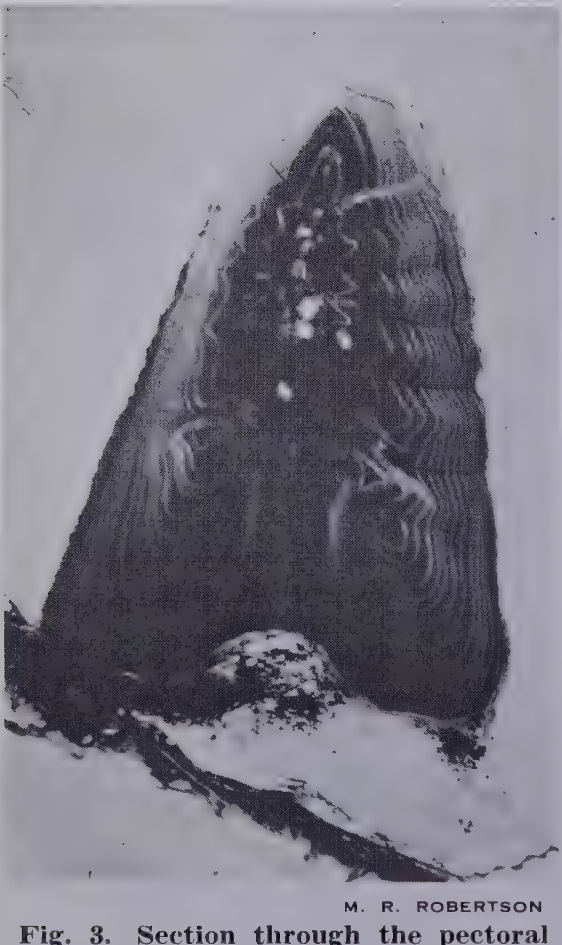
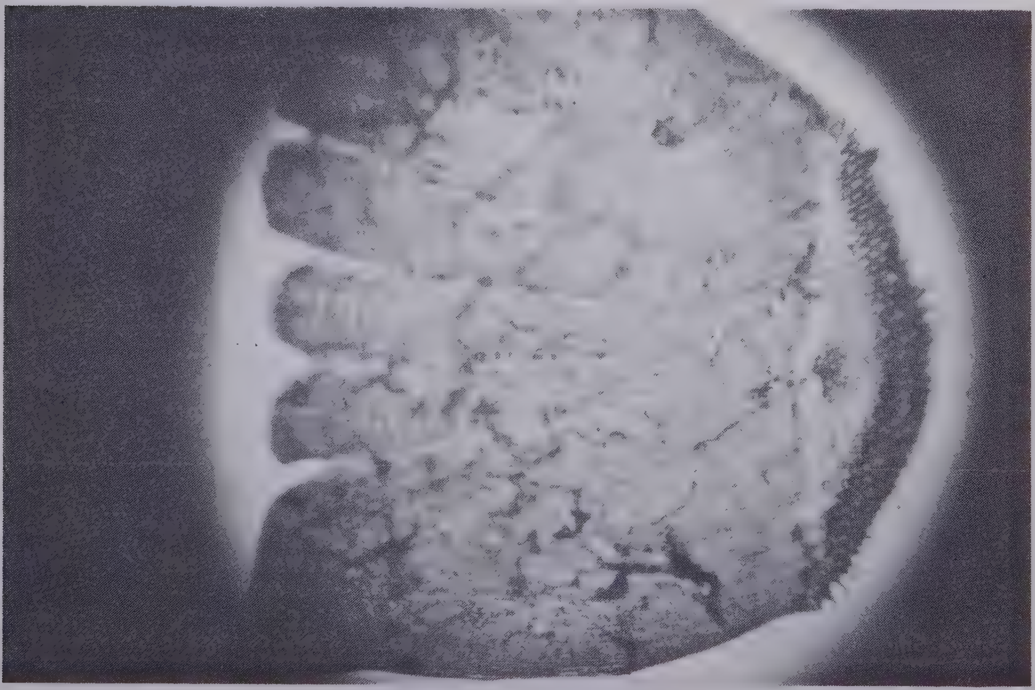

M. R. ROBERTSON

Fig. 3. Section through the pectoral spine of a lake sturgeon.

warm water will use more energy merely to live than will a fish in cold water, simply due to accelerated body processes resulting from the warmer temperature in the water surrounding it. Coupled with this growth phenomenon is a particularly handy characteristic of our area. Our climate consists of warm summers coupled with extremely cold winters. Consequently all our natural water bodies undergo seasonal fluctuations in temperature ranging from summer highs in the region of 75° F to winter lows approaching the freezing point. As fish live in these waters at all times of the year, their body temperatures and their activity patterns are geared to their environment. To put it quite simply, one might say that during the warm water temperatures of summer, fish eat more and grow faster due to their increased body temperature. In winter, when water temperatures are low, fish grow at a markedly slower rate. These seasonal changes in the growth pattern of the fish are usually clearly indicated in the fish's scales. Figure 1 shows a picture of a lake whitefish scale. It can be clearly seen that the scale has a definite pattern to it; there is a clear spot towards the center of the scale, surrounded by series of concentric circles of varying widths extending to the outer edge. It is these circles which, through interpretation, can reveal the age of the fish. The concentric circles (circuli) of a fish scale are laid down at regular intervals. The spacing between the individual circles depends on the rate of growth of the fish. During the summer when the water temperatures are warm and fish growth rates are most rapid, the space between two of these small circles will be fairly large because there will have been a substantial increase in the length of the fish during the period between the formation of the circuli. During the winter, however, when growth rates are markedly reduced, growth rings are laid down much closer together because there is a substantially smaller increase in length between circulus deposition. Obviously, therefore, fish scales must grow at a rate relative to the growth of the rest of the fish. Figure 2 shows the scale taken from a lake whitefish in late summer of 1968. Close examination of this photograph reveals that the distance between the concentric rings gradually increases as one progresses from the center or focus of the scale to its outer margin. This fish had just completed its first summer's growth, which can be clearly seen as having occurred during the deposition of the last 20 or so rings in the scale. Figure 1 is another whitefish taken at the same time from the same lake. This whitefish was 3 years old and the 3 bands of largely spaced circuli are quite evident. (These larger bands are called annuli because one is laid down each year.)

In fact, most of the hard portions of the fish's body in some way reflect this seasonal type of growth. Scales are generally used for aging because they are easy to collect, fairly easy to process, and relatively simple to analyse. However, in the case of certain other fishes other parts of the body are used. The burbot, commonly known as the ling or mariah, having tiny non-overlapping scales requires some different method of aging. To do this an otolith (ear bone) is removed from the fish's head, dried, cut in half, and the tiny rings counted to determine age. Figure 3 shows the section through the pectoral spine (that is the front fin spine) of a

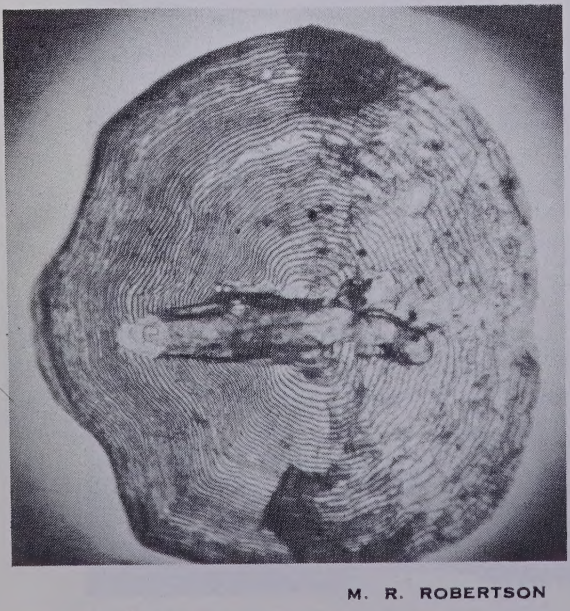
M. R. ROBERTSON



Scale from a yellow perch. Its spiny shape is the reason for the rough feel of this species.

lake sturgeon taken from the South Saskatchewan River. This sturgeon weighed 16 pounds and was 41 inches long when captured and, as can be seen from the clearly distinguished layers within the spine, was about 16 years old.

Now that we know how to age these fish, why do such discrepanices in growth occur? Why should a 4 pound fish from one lake be 7 years old while a 4 pound fish from another lake may be only 3 years old? The reason for these differences are varied and many. For example, if a fish is a member of a population living in a small lake, with a limited food supply, that is under crowded conditions, its growth is affected. Lack of food may cause a relatively slow growth and other factors due to the high population will also serve to inhibit growth. Such a fish may attain a fairly advanced age but remain quite small. The opposite extreme is shown by trout planted in our prairie pothole trout fisheries. These fish are introduced into a habitat which is presently not being utilized at all. The population pressure is very light and the fish, with little crowding and ample food supply, will grow very rapidly and achieve considerable size in a short space of time. Fish from colder northern waters, generally grow slower, but may often attain more advanced age than fish from southern, warmer waters.



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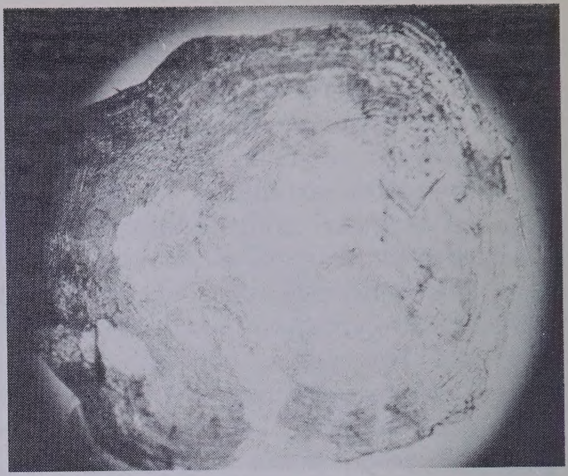
Whitefish scale showing lateral line pore canal.



M. R. ROBERTSON

Replacement scale of a whitefish.

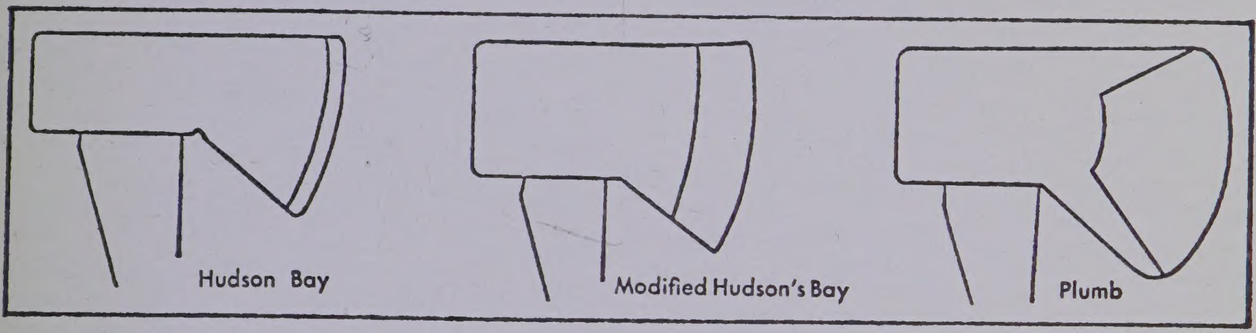
Fish, like most cold blooded animals, grow throughout their life, although the rate of growth decreases as the age of the fish increases. Apart from the angler's interest in how old his fish is, however, to manage fish stocks properly, the age characteristic of the population is of prime importance. It is necessary to know such things as at what age fish spawn, whether or not the age structure of the fish population has changed due to fishing pressure, etc. From knowledge of such factors a biologist can decide whether or not the fishing pressure should be increased or decreased on this population, whether more stringent size or number limits are necessary, and whether or not he is stocking these fish at a satisfactory rate. Knowledge of age and growth rates also indicates when a stocked population is liable to reach catchable size; whether or not a population is reproducing, or whether all of the population originates from the original planting.

While aging of fish is not quite as simple as I have made it appear (due to the introduction of other marks on scales as a result of spawning, etc.), it is apparent that such knowledge is essential if any management of our fish populations is to be attempted. Biologists are fortunate in having the life history of our fish written on each and every scale in this way as without a convenient aging method the problems of fishery management would be far more difficult to solve.

AXES

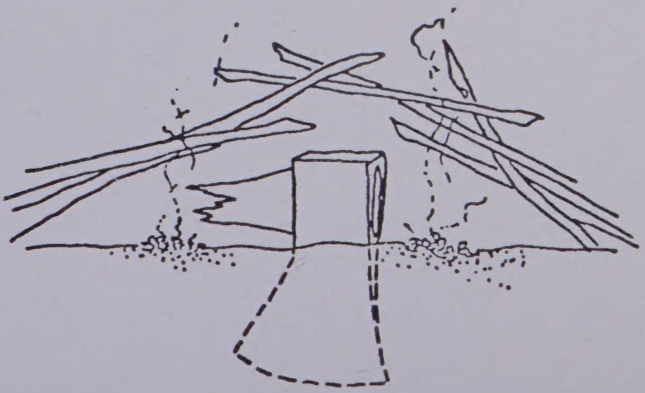
THE IDEAL AX HITS A HAPPY MEDIUM. IT MUST BE BIG ENOUGH TO DO MORE THAN CHOP KINDLING, AND YET SMALL ENOUGH TO CARRY EASILY.

THE BEST AX HAS A HANDLE LONG ENOUGH TO MAKE CHOPPING EASY, BUT SHORT ENOUGH TO PACK AND CARRY WELL. IT HAS A SINGLE EDGE WHICH IS SHARP, FOR CUTTING, SINCE LITTLE SPLITTING IS DONE IN CAMP, AND IT HAS A FLAT SIDE TO THE HEAD FOR POUNDING STAKES. IN OTHER WORDS, IT IS THE LITTLE CAMP AX WITH A LONGER HANDLE THAT ALLOWS YOU TO USE TWO HANDS INSTEAD OF ONE. THE NARROW POLLED HUDSON'S BAY GIVES THE GREATEST AMOUNT OF CUTTING EDGE WITH THE LEAST BLUNT SIDE AND WEIGHT. THE MODIFIED HUDSON'S BAY ADDS A BIT OF WEIGHT. BUT THE HELVE OR HANDLE IS MORE FIRMLY FIXED IN THE BROADER POLL. THE PLUMB DESIGN ADDS STILL MORE WEIGHT, AND COMBINES BROAD CUTTING EDGE WITH WIDE POLL TO TAKE THE HANDLE SOLIDLY.



SOMETIMES A HANDLE WILL BREAK ON THE TRAIL, NO MATTER HOW CAREFUL YOU ARE. WHEN THAT HAPPENS THE ONLY THING TO DO IS TO MAKE A NEW HANDLE. IT IS EASY ENOUGH TO PICK A GOOD STRONG SAPLING OF THE RIGHT THICKNESS FOR A HANDLE. BUT KNOCKING THE OLD HELVE OUT OF THE EYE OF THE AX IS DIFFICULT.

THIS CAN BE ACCOMPLISHED WITHOUT DESTROYING THE BLADE'S TEMPER BY BURYING THE BLADE IN THE GROUND UP TO THE EYE. BUILD A FIRE AROUND THE HEAD, AND KEEP IT GOING UNTIL THE HELVE IS SUFFICIENTLY LOOSENED TO KNOCK IT OUT. WHITTLE THE SAPLING HANDLE TO SHAPE, INSERT IT, AFTER SPLITTING THE HEAD TO TAKE A WEDGE, THEN WHITTLE A WEDGE OF WOOD AND DRIVE IT HOME.



A HANDLE THAT HAS DRIED OUT THROUGH LONG STORAGE AT HOME IS LIKELY TO WORK LOOSE FROM THE HEAD. BEFORE STARTING THE TRIP, THIS SHOULD BE CORRECTED BY SOAKING THE HEAD IN LIGHT OIL WHICH WILL SWELL THE WOOD. OR YOU CAN PUT IN A NEW WEDGE. EMERGENCY TREATMENT ON THE TRAIL CONSISTS OF SOAKING THE HEAD IN WATER TO SWELL THE WOOD.

CREDIT: ALBERTA HUNTER TRAINING – CONSERVATION MANUAL

G. RUSHTO

A wolverine, the largest member of the weasel family, tests the wind in search of food.

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